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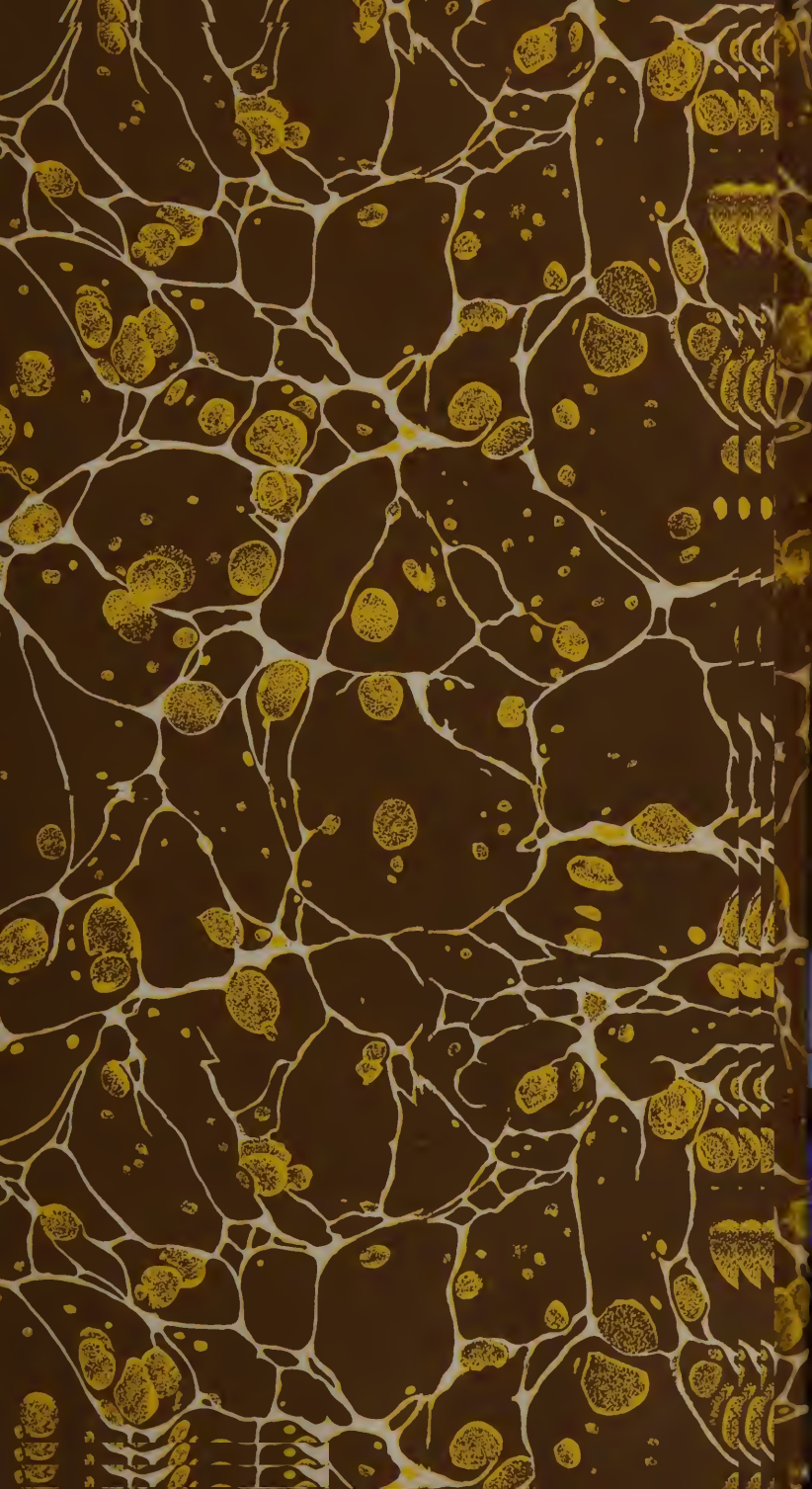
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Section

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*John R. W. Dumbars*

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7770  
TREATISE

OF

PATHOLOGY

AND

THERAPEUTICS.

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# PATHOLOGY AND THERAPEUTICS.

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## CHAPTER XVIII.

### EFFECTS OF WEAKENED ACTION OF THE HEART.

1209. IN the preceding pages we have seen that weakened action of the heart is one link of the chain of causes and effects extending from the remote causes to the symptoms of fever (18. 691). The next question in the prosecution of this inquiry (19) is, what is the effect of this cause, weakened action of the heart?

1210. One consequence immediately flowing from weakened action of the heart, is the diminution of the quantity of blood sent into the arteries; whence follows, 1st, weakness of the pulse, a very obvious consequence of the diminution of the power which distends the arteries; 2d, paleness, and coldness of the surface, consequences, as certain, of the failure of the usual supply of blood to the surface; 3d, diminished bulk of the external parts, shrinking of the features, and shriveling of the skin, all necessarily following deficient fulness of the cutaneous and subcutaneous vessels. Weakness of the pulse, paleness and coldness of the

surface, and diminished bulk of the external parts, shrinking of the features, and shriveling of the skin, are therefore immediate consequences of diminished action of the heart. There is another consequence of this state of the heart, very extensive in its operation on the human system.

1211. The heart is an exceedingly strong muscular cavity, which receives the blood from the veins, and impels it with great force and velocity into the arteries.

1212. The arteries are firm elastic tubes, the greater part of them firm enough to retain the form of a tube when empty. At every contraction of the heart the blood is forced into them, whereby they are distended; but they have the power of contracting so forcibly, as immediately to overcome the distension. This distension is sometimes visible. It may be seen in the temporal artery, in those thin persons in whom that artery is very prominent, running as it were above the level of the neighbouring skin. It may be distinctly ascertained by feeling the radial artery when the pulse is strong. At the moment of distension, the artery is felt to swell out to the fingers, and immediately after to retire from them; and this is the case when the artery is so strictly confined between the radius and the fingers, that very little more pressure will obstruct the passage of the blood, so that the artery is incapable of any departure from the straight line. The arteries have the power of expelling the blood contained in them, when the heart ceases to act, so that after death they are found empty. I have seen the external iliac so closed as to require the insertion of a probe to show the cavity.

1213. The veins are flaccid vessels, exerting little force on their contents, and readily yielding to a distending force.

1214. The divisions and minute subdivisions of the arteries and veins penetrate every part, and constitute a large portion of every structure, and almost the whole of some, as the glands. Through these numberless vessels, the blood with great force and rapidity is unceasingly driven; a mass equal to the whole quantity in the body, passing from the arteries to the veins many times every hour. The heart propels the blood into the arteries, the arteries propel it into the veins, which slowly return it to the heart. While the heart acts vigorously, the vital stream is passed on as fast as it presents itself; but as soon as the action of that organ is diminished, less is received, and the great veins are distended. If the diminution of the action of the heart be sudden, in a little time the accumulating blood presses on the heart and stimulates it to increased action, whereby the evil is sometimes remedied. But the continued operation of the causes, in force sufficient to produce continued weakness of the action of the heart, produces continued fulness of the great veins.

1215. Early in life, the balance of the circulation is maintained by the activity of the heart; but as soon as it begins to flag, the scale is turned against the veins. As age creeps on, venous plethora becomes more and more apparent; and when the action of the heart ceases in death, the veins are found full, the arteries empty.

1216. This is not the effect of age alone. In every

period of our existence, when disease puts an end to the action of the heart, the result is the same. The cava is found full.

1217. Nor is it the effect of disease. In all the vigour of life, if by any operation the action of the heart be stopped, the immediate consequence is the same. "When the breast of a living dog is opened by taking away the sternum with the cartilaginous appendices of the ribs, the lungs are observed suddenly to sink, and afterwards the circulation of the blood and the motion of the heart to cease. In a little time after that, the right ventricle of the heart and the vena cava are swelled as if they were ready to burst."<sup>1</sup>

1218. The effect of weakened action of the heart, therefore, is accumulation of blood in the great veins entering into it.

1219. As the latter is the consequence of the former, that which indicates the former indicates also the latter. We have before seen (82. 83) that a pulse smaller and weaker, and a surface and extremities paler and cooler than usual, indicate weakened action of the heart: these symptoms therefore also indicate accumulation of blood in the vena cava and its branches.

1220. As this accumulation necessarily extends to the great branches of the cava, let us inquire how far it extends, and what branches are readily filled.

1221. The veins having but little action, they derive assistance from various sources to enable them to pass on their contents. As in different parts of the system this is more or less effectual, or as they are more or less disposed to yield, accumulation of blood to greater or less extent must take place.

<sup>1</sup> Bell's Anatomy, Vol. 1, p. 350.



1222. The veins of the fleshy parts having the benefit of almost perpetual action of the muscles, and of the aid of valves, to prevent regurgitation and to give the more complete effect to the muscular pressure, the blood has but little opportunity to accumulate in them, but is incessantly driven to the interior of the body.

1223. The vena cava, and its branches between the last valves and the heart, being destitute of those aids which in other parts help the blood along, must be the chief seat of venous plethora.

1224. This great cavity consists of the vena cava, the external iliac and the crural veins, the hypogastric or internal iliac veins and their branches, the hepatic veins and their branches, the vena portæ and its branches, the renal veins, the subclavian veins, and the internal and external jugular veins.

1225. The veins of the arms escape from among the muscles near the head of the humerus, and, joining with others from the neighbouring parts, form the subclavian. This point is the limit of the cavity in this direction.

1226. The veins of the head internal and external, including the sinuses of the brain, have no valves; and therefore the cavity in this direction extends to the origin of the veins, and includes those passing from the glands about the head. These all have free communication with one another, and with the cava through the subclavian vein.

1227. The cavity is limited by strong valves at the mouth of the azygos, the next considerable vein entering the cava.

1228. The coronary veins of the heart are in like manner strongly guarded.

1229. The hepatic branch of the venous cavity is very extensive. The vena portæ, which, ramifying in the liver, by the re-union of its numberless branches forms the venæ hepaticæ, is composed of three large veins; besides some minor ones from the stomach, the duodenum, and the gall bladder.

These are the greater mesenteric, the splenic, and the internal hemorrhoidal or smaller mesenteric veins.

1230. The greater mesenteric vein is formed of the numerous vessels which return the blood from the small intestines, the cœcum, the right portion of the colon, the pancreas, and the omentum. By the convergence of all these is formed an immense assemblage of veins of very large size in the mesentery, which anastomose in the freest manner. It is difficult to realize their number and their size without examining a good preparation.

1231. The splenic vein carries into the vena portæ the blood sent to the spleen, a very considerable quantity. The size of this vein in comparison with the artery is peculiar; its trunk is to that of the splenic artery, in the proportion of five to one, and consequently there is a proportionate slow motion of the blood in the vein.

1232. The internal hemorrhoidal or smaller mesenteric, is formed of the veins which return the blood from the upper part of the arch and the left portion of the colon, and from the whole of the rectum. Even these remote branches are a part of the venous cavity. When the smaller mesenteric vein of a subject having piles is dissected, the ramifications terminate in these pouches of blood.<sup>1</sup> Hence the mortal hemorrhages

<sup>1</sup> Journal of Foreign Medical Science, &c. No. 10, p. 253.

from these small tumours which have occasioned so much surprise.<sup>1</sup>

1233. The structure of this extensive system renders it in a remarkable degree liable to suffer accumulation of blood. The coats of the veins, especially those of the spleen and liver, are weak, and exert little force on the fluid contained in them; they are little assisted by muscular action; they have no valves; their great peculiarity, the subdivision of the vena portæ in the substance of the liver, and the re-union of its small branches into the large veins, called hepatic, promotes accumulation of blood in them. In every other part of the system, this fluid, after having passed through one set of veins, receives anew the impulse of the heart. Here it passes through two additional sets before it has that advantage. Hence the blood is, in these vessels, extremely sluggish in its motion.

1234. The large but short renal veins also form a part of the venous cavity.

1235. The hypogastric or internal iliac veins are very large branches of the cava; the internal iliac artery carrying into the pelvis nearly as much blood as the external iliac does to the lower extremities.

1236. The uterine branches of these veins are large and capable of extraordinary dilatation. Wistar says, the veins of the uterus, during gestation, are in some places more than half an inch in diameter.<sup>2</sup>

1237. Other branches of these veins return the blood from the whole substance of the back part of

<sup>1</sup> See Cooper's Surg. Dictionary, Vol. 2, p. 44.

<sup>2</sup> Wistar's Anatomy, Vol. 2, p. 207.

the pelvis, viz. the parts within and without, and from the cavity of the bone itself.

1238. The external hemorrhoidal veins are branches of these, and when distended constitute the external piles. They inosculate with the internal hemorrhoidal veins. Thus the piles, whether internal (1232) or external, are portions of the venous cavity.

1239. This branch of the great venous cavity lies lower than any other part of it, except the lower extremity of the external iliac vein; and is therefore pressed by a great weight, the pressure of a column of fluid being in proportion to its height. Freely communicating with the cava, it partakes of its fulness whenever the blood accumulates in that great vein.

1240. A short distance without the abdomen, a considerable number of veins from the large muscles of the leg and thigh uniting, form the crural vein, which, in proportion to any of the rest, is quite large; and after entering the abdomen takes the name of external iliac vein.

The smaller branches which form the crural vein, being exposed to the constant action of the strong muscles of the thigh, and having the aid of valves, are not liable to partake of any ordinary degree of fulness of the vena cava. Here, then, is the limit of the venous cavity in this direction.

1241. These branches of the cavity vary much in their disposition to yield, and in their sensibility under venous plethora. The hepatic is the weakest in its structure and most apt to yield. The veins constituting the bulk of the liver and spleen, have been so excessively distended, and thereby weakened, that these

viscera, on being taken out of the body immediately after death, have been found unable to bear the weight of their contents, and have fallen in pieces from the hands of the operator.

The uterine branch of the hypogastric vein is capable of great dilatation ; but the head is most sensible to fulness of its veins.

1242. This is not always found to be the relative disposition in the different branches of the venous cavity, to yield to the accumulation of blood. In some instances the veins of the head give way more readily than usual. In others, the uterine veins, though ordinarily much disposed to yield, are extremely rigid. In a third set, you may find the liver or spleen habitually tumid, and, when reduced to the ordinary size, prone to become large again.

1243. In order to have a distinct idea of this cavity, let us suppose the action of the heart suddenly to cease. The check given to the blood would instantly produce distension of the cava (1218), which would, in every successive moment, dilate successive portions of that vessel and its branches till the valves were raised. It is evident that at this moment the regurgitated blood would distend the cava, the internal and external jugular veins, the subclavian, the hepatic, the renal, and the hypogastric veins, and the external iliac and crural veins ; and that access would be denied to it into the veins of the limbs, and into the azygos, and the coronary veins of the heart.

1244. The following dissection of a child five or six months old, was made with a view to this subject. The ribs, sternum and clavicles, the integuments and mus-



cles of the arms and legs, the lungs, the diaphragm, the mediastinum, the stomach, were all cut away, so as to show the whole of the veins from the calf of the leg and the upper part of the arm into the cava, and the whole course of the cava ascendens and descendens, with the subclavian veins.

It was, when thus laid open to view, at a single glance apparent, that the right side of the heart, the cava, the subclavian veins, the iliac, the crural and the deep vein running along with the femoral artery down as far as the calf, were very full of black blood. The veins were so full as to preserve the round shape, and were stuffed full to the valves near the head of the humerus, at which point the stuffed appearance ceased suddenly; and immediately at the termination, the vein returning from the arm was empty, flaccid, and transparent, so as scarce to be perceived by candle light. On pressing the blood of the full venous cavity towards the stuffed end at the head of the humerus, it would not pass into the vein beyond the valves; but on increasing the pressure, it was forced out of the minute veins, entering into the subclavian from the skin and other neighbouring parts, which had been cut across in laying bare the subclavian vein, and which were so minute as not to let the blood pass till pressure was made. The venous cavity was here shown in its exact shape, &c. The azygos had blood in it, but was quite small.

1245. Though this cavity be the special seat of venous plethora, there are cases in which the gradual accumulation of blood is such, that all the veins of the body are distended. In some of these cases the veins

even on the back of the hand are singularly prominent, and so distended as to be quite round.

1246. In some cases too, when, in consequence of general plethora and great inaction, pregnancy or other obstruction, the column of blood in the saphena so distends that vessel that its valves are no longer capable of meeting and closing the passage, this venous trunk has no barrier between it and the venous cavity, and becomes a part of it.

1247. It is evident that repeated distensions of the venous cavity must lessen its tone, and render it more liable to yield in future, and even to remain permanently enlarged; and that this enlargement must especially affect those parts that are particularly lax in their structure; as the vessels of the liver, the spleen, and the uterus.

1248. Accumulation of blood in the venous cavity being the effect of weakened action of the heart, is another link of the chain of causes extending from the remote causes to the symptoms (18). The next question is (19), what are the effects of this cause, accumulation of blood in the venous cavity?

1249. Before we proceed, however, some things must be noticed, which produce this link of the chain of causes, and are therefore remote causes of fever (1204).

1250. The suppression of customary evacuations is an obvious cause of fulness of the vessels, which, if the action of the heart continue the same, must centre in the venous cavity.

1251. The suppression of the secretion of bile increases, in the most direct manner, the fulness of the venous cavity; the bile passing directly from a branch

of that cavity through the biliary ducts into the intestines.

1252. The menstrual discharge is another regular vent from a branch of the venous cavity (1236), the suppression of which directly increases the fulness of that cavity.

1253. The suppression of the white discharge from the same vessels has a similar effect.

1254. Suppression of the hemorrhoidal discharge has the same effect of filling the venous cavity (1238).

1255. The suppression of the secretion of urine rapidly fills the vessels in general, and therefore the venous cavity, if the action of the heart continue the same (1250).

1256. Suppressed perspiration has the effect, like that of urine, of filling the vessels generally. This fulness necessarily centres in the venous cavity, if the action of the heart continue the same.

1257. Suppressing eruptions on the external surface produces the same effect. The fluids repelled from the exterior accumulate in the interior, and, if the action of the heart be not increased, in the venous cavity.

1258. When in these disorders a fluid is discharged, its suppression is the more dangerous; as not only the fluid forming the tumour is repelled, as in the last case, but the habitual evacuation is suppressed.

1259. The suppression of the discharge from a habitual issue has the same effect.

1260. These causes also operate indirectly to produce weakened action of the heart, and therefore accumulation of blood in the venous cavity. From the increased proportion the sum total bears to the quan-

uity which the lungs can decarbonize, arises a gradual darkening of the colour of the blood, the consequent diminution of the power of the blood to stimulate the heart (595), and weakened action of that organ.

We now proceed to inquire into the effects of the accumulation of blood in the venous cavity (1248).

## CHAPTER XIX.

### EFFECTS OF ACCUMULATION OF BLOOD IN THE VENOUS CAVITY.

1261. Accumulation of blood in the venous cavity produces different effects, as it takes place suddenly or not.

1262. When the action of the heart is suddenly diminished, the accumulation of blood produced by checking a current so large and so strong, distends the cava, and it appears as if it were ready to burst (1217). By the continued arrival of blood, the accumulation distends successive portions of the cava, and of those of its branches which are unprotected by valves; and the distension of successive portions, rapidly made, has the effect of a current running back from the heart. As soon as the distending fluid reaches the valves which limit the venous cavity, they are raised; and this backward wave is instantly arrested, rebounds, and the impulse is directed towards the heart. If this organ have not lost its excitability, the sudden entry of the blood excites it to action, the circulation is restored, and the accumulation of blood in the venous cavity lessened.

1263. Thus, when young people are bled till they faint, they often *instantly* revive. At the moment the pulse ceases to be felt, the blood stops flowing from



the orifice, and the countenance becomes pale, indicating that the heart has ceased or nearly ceased to act, and that the cava is distended: in a moment afterwards, *at the same instant* the distension of the artery is felt, the blood springs from the orifice, and the countenance is flushed.

1264. It is only by the gradual and continued operation of the causes, that habitual accumulation of blood in the venous cavity is produced.

1265. The most obvious consequence of great accumulation of blood in the venous cavity, is distension of all the veins constituting it (1243); and the consequent enlargement of those parts, as the liver and spleen, principally made up of veins which are portions of it.

1266. The distension of the cava is common, although little noticed. A lady complaining of being very unwell, while gently pressing the epigastrium I discovered a pulsation, which without the least difficulty was traced downwards a considerable distance. It was so large that two fingers' breadth did not cover it; it was so strong as to be felt through the ordinary clothing, on a very slight application of the hand. It was distinctly to the right of the spine.

The pulse at the same time was weak, and exceedingly irregular; and when the pulsation was greatest, the pulse at the wrist was extremely small, and the face pale, and the lips almost white, strong marks of fullness of the venous cavity (1219).

1267. This pulsation of the cava has been considered as produced by an aneurism of the aorta. This was, on the first discovery in the case abovementioned, apprehended by the patient. It disappeared, how-

ever, after a short time, and has returned more than once since; always being most marked when the pulse at the wrist was smallest and weakest.

1268. This pulsation I have frequently observed in patients in a low state of health, with weak pulse, and languid and pale countenance. It is sometimes remarkable when the pulse is gone at the time of death.

A man who had been in a low state of health for fifteen years or more, and was much emaciated, had this pulsation in the abdomen. It was always most remarkable when the pulse was weakest. When the pulsating tumour was held by two fingers, one at each side, the fingers were so far apart, that the two middle fingers of the other hand passed freely between them. Called to him when dying, I found his pulse gone entirely; none to be felt, even at the elbow, though he was much emaciated. On examining the abdomen I found the tumour increased, and the pulsation much stronger; at the same time that there was so much tenderness, that on barely feeling it he started from his stupor, and looked about in a complaining way, making signs of uneasiness. There was a distinct space between the ridge of the spine, which could be distinctly traced, and the pulsating vessel.

I left him dying, and went home; but, desirous of witnessing all the changes of the pulsation, immediately returned and found he was dead. But a student, Mr. Harris, to whom I had pointed out the pulsation, and whose curiosity was excited, told me he had examined it at intervals to the last; that it continued to increase; that at length the by-standers observed he was dead; and that he then immediately

examined the tumour, and still felt the pulsation several times; the lower part disappearing, so that the tumour became shorter and shorter; and that he particularly noticed, that the tumour was traced to the ribs at the right side of the epigastrium. This I had also noticed before I left him.

The body was opened: the cava and its branches were full of blood; the veins of the heart were full of black blood; the veins of the stomach were also filled with black blood; the inner surface of the stomach had a dark appearance, particularly at the upper part; it contained a quantity of a thin mucous fluid of a dusky reddish cast and disagreeable smell; the spleen was large, firm, and lead coloured; the lungs were livid at the parts next the back. There was nothing remarkable in the aorta; it had a very small quantity of blood in it.

1269. It is evident, from the pulsation being so far to the right that the fingers could be put between the spine and the pulsating vessel, from its continuance after the action of the heart became so weak that the pulse at the wrist had ceased, and from its being distinctly traced to the edge of the ribs two inches or more to the right of the middle of the epigastrium, that this pulsating vessel was the cava. The same is evident from what I have frequently observed, that this pulsation appears and disappears; appearing when the pulse is low and weak, and therefore the cava distended; and disappearing when the pulse is full and regular, and the distension of the cava lessened.

1270. The lady abovementioned, at the same time that the pulsation in the right side of the abdomen was

observed, complained of a sensation in her breast, immediately under the sternum, which she described as *a fluttering* of her heart, and of a thumping in the throat. These two were described as only different degrees of the same sensation: when the fluttering increased considerably, it sometimes arose to the height which she called a thumping. On being desired to point out precisely the part where it was felt, she put her finger to the top of the breast bone. All these sensations, as well as the pulsation in the abdomen, were most remarkable when the pulse was most feeble and most irregular, and the face pale, and the lips almost white. This pulsation in the abdomen corresponded with that of the radial artery.

The man also, abovementioned, was frequently distressed with violent sensations which he called palpitations (1268).

1271. These irregular or unusual motions of the heart, and of the veins entering into it, have received the general name of palpitations. They are produced in several ways.

1272. When the heart contracts, it is closed against the blood entering it from the cava; which, continually arriving from all parts of the body, necessarily distends that vein: when the heart dilates, the blood entering it from the cava, the distension of the latter is lessened. There is, therefore, an alternate increase and diminution of the quantity of blood in the cava, corresponding with the contraction and dilatation of the heart.<sup>1</sup> As the distension of the cava is the con-

<sup>1</sup> Bell says, "In living animals I have undoubtedly seen the course of the blood, in the great veins near the heart, alternately checked and accelerated in its motion." Bell's Anatomy, Vol. 2, p. 233.

sequence of the contraction of the heart, it corresponds with the distension of the aorta; and therefore the pulsations of the cava correspond with those of the aorta, and the other arteries.

1273. When the quantity of blood in the venous cavity is greater than common, this pulsation must be greater; and it may evidently be so great, as to be observed or felt in the course of the cava.<sup>1</sup>

1274. This strong pulsation in the ascending and descending cava (1269), is therefore the effect of accumulation of blood in them, increasing the ordinary alternate contraction and dilatation of the cava, which necessarily arises from the structure and action of the heart and of that vein.

1275. This pulsation (1272) can sometimes be observed, in a thin person lying down, to extend to the jugular veins; and by keeping the finger on the radial artery, the distension of the veins in the neck may be seen to correspond with the pulsation of the artery.

1276. This pulsation of the vein is not produced by the carotid artery; because, 1st, the swelling of the vein extends towards the head, and subsides towards the clavicle, alternately; which can only be explained by an alternate check given, and free course allowed, to the current in the vein, and which actually occurs; and cannot be explained on the supposition of its being produced by the pulsation of the carotid, which would propel outwards the jugular vein, in its whole length in the same moment, and the swelling would be

<sup>1</sup> Bell mentions a case from Sandifort, in which the heart and great veins, and especially the upper cava, were greatly dilated, and "there was felt distinctly a pulsation in the neck by a sort of back stroke every time the heart beat." Bell's Anatomy, Vol. 2. p. 46.



from within outwards, and disappear from without inwards; 2d, when the vein is pressed so as to stop the course of the blood in it, and it swells above the obstruction, the motion or pulsation ought to be more striking if it depend on the artery; but it is not; the vein then remains quiet; 3d, if you lighten the pressure so as still to produce some distension, but without entirely obstructing the communication with the heart, the pulsation immediately returns.

1277. While observing the pulsation of the vein, an appearance of agitation is discovered, and on close attention it may be distinctly perceived, that there is, in the interval of the pulsations which correspond with those of the artery, another and smaller distension of the veins of the neck: so that there are two pulsations in the cava and branches for one in the artery; a full one corresponding with the contraction of the heart, and a less one corresponding necessarily with its dilatation.

1278. This is produced in the following manner. At the moment in which the cava is most distended, the ventricle beginning to dilate receives blood from it, and the distension of that vein subsides (1272).

While the ventricle is dilating, the auricle is contracting, and having no valves to direct the impulse it gives the blood, this fluid is impelled both into the ventricle and the cava; and as soon as the ventricle is filled, the flow of blood in that direction being checked, the impulse into the cava is increased, and the current thus produced, meeting that which is flowing towards the heart, causes the small distension or pulsation.



In the next instant, the ventricle contracts and the auricle dilates, the pressure on the contents of the cava is taken off, the dilating auricle receives the blood, and the distension of the cava is for a moment lessened; but as soon as the auricle is fully dilated, the blood continually pressing into the cava from all parts, and stopped by the closed valves at the entrance into the ventricle, the greater distension is produced.

1279. When there is a great accumulation of blood in the venous cavity, all these phenomena must be more strongly marked; and it is evident that they may produce, by the double pulsation of the jugulars and the subclavian vein, an extraordinary agitation.

1280. This is often observed in the necks of persons in malignant fevers, particularly towards the close in fatal cases. It is commonly attributed to the pulsation of the carotids; but the pulsation of these arteries, although they add to the agitation in some cases, cannot produce this effect. The motion is much too rapid to be thus produced; there are evidently many more motions than there are arterial pulsations; and the commotion is greater and greater as the patient sinks and the pulse fails.

1281. It is evident that this violent regurgitation of blood in the jugulars must in some cases extend to the sinuses of the brain; and when in persons having a great quantity of blood in the venous cavity, the action of the heart is great, *as the pulsation of the jugulars corresponds with that of the carotids* (1272), the fulness or distension of the arteries and the veins must co-operate in producing great pressure on the brain:

accordingly we see the patient in such cases always affected with more or less stupor. This often continues to the last moment of life, the patient not being relieved by the declining action of the heart: for although the distension of the arteries is less, the blood having settled in the cava, that of the veins is greater, and the effect is kept up as long as the heart beats. This commotion of the blood vessels, especially observed above the clavicles, has been called a palpitation.

1282. Another commotion, also called palpitation, occurs in the following manner. The heart sometimes contracts very irregularly, and with great violence for a short time, and then moves on regularly for some time. It occurs frequently on some days, and sometimes several days pass without any appearance of it. This affection has occurred in my practice, to those persons who were habitually suffering from great accumulation of blood in the venous cavity. Upon very close attention to cases of this kind, the blood appears to accumulate, until having arrived at a considerable height it is impelled into the heart, excites it to violent action, whereby the accumulated fluid is forced into the arteries, the cava is relieved, and, the stimulus to increased action being carried off, the heart settles down into its usual state; and continues so until renewed accumulation urges it to a renewed effort to remove it.

1283. This hurried action is by some attributed to increased irritability of the heart. Inasmuch however as the effect is only occasional, the immediate cause must occur occasionally. It cannot therefore be increased irritability of the heart. The immediate cause

of that symptom cannot have existed for any time previous to the occurrence of the effect. It must have been then brought into operation, and immediately afterwards have disappeared, corresponding with the sudden appearance and disappearance of the effect (2). These characteristics of the immediate cause of this affection are found in the alleged cause, accumulation of blood in the venous cavity, and this is moreover known to be present in these cases (1282).

1284. This is the sensation felt in consequence of violent exercise ; and evidently arises in that case from the blood being forced in great abundance into the heart ; it being evident that such violent exertion does press on the blood in increased quantity ; and that this must increase the action of the heart, inasmuch as the blood is the natural stimulus of that organ (81).

1285. Those who are subject to this affection, and experience it sometimes when sitting quietly, are particularly liable to have it brought on by sudden exertion, and it is then more than usually violent.

1286. It is evident that the immediate cause is in both cases the same. In the one, the blood being in greater quantity than the heart ordinarily circulates, there is a gradual accumulation in the cava, &c. until it arises to such a height that it must find vent, and urging the heart, this organ is excited to violent action until the excess is sent on. In the other, the blood is sent on to the heart by sudden exertion, in increased quantity, and produces increased effect : and when this occurs in a person labouring under habitual accumulation of blood in the venous cavity, it must necessarily produce a still greater effect.

1287. The whole is confirmed by the fact, that those persons are most subject to this affection who live sedentary or inactive lives, and who are evidently, from their general appearance of languor, paleness, and from the weakness of their pulse, as well as from the presence of the effects of accumulation of blood in the venous cavity, already recited and to be recited, subject to such accumulation.

1288. Some who live sedentary and inactive lives, and who eat a great deal, and are very plethoric, also suffer the same on any sudden exertion. In these persons also, abounding in blood beyond the necessities of the system, or the ability of the heart to circulate it, there is a great accumulation of that fluid in the venous cavity; all beyond what is necessary for the purposes of the system, and what the heart is able to send on by its ordinary effort, necessarily resting in the cava, &c.

1289. The same (1287) is confirmed by the fact, that those, who live active lives and keep the blood constantly moving on to the heart, causing vigorous action of that organ, whereby there is no accumulation behind it, are not subject to this affection; neither does a sudden effort produce it in them.

1290. It is also confirmed by the fact, that those who are subject to this affection, are relieved from it by such moderate and regular exercise, as, by continually sending on the blood to the heart, keeps it regularly in vigorous action, and prevents accumulation of blood in the cava, &c.

1291. Palpitations produced by violent emotions of the mind have been attributed to a sudden and rapid influx of the nervous power into the muscular fibres

of the heart. Most of these emotions, however, produce paleness and weak pulse, and therefore an accumulation of blood in the venous cavity. At the same time, we have no evidence that they produce the sudden and rapid influx of the nervous power spoken of: from the depressing passions particularly, we should not expect a more rapid influx; at least as a direct or immediate effect, as is in this case supposed. The emotions of the opposite character, within certain degrees, are stimulant; but the excessive degrees which produce palpitation, overpower the action of the heart, producing pale countenance and feeble pulse; and even put an entire stop to it.

These strong emotions of the mind, therefore, are not alike in the power of exciting; but they agree in producing weakened action of the heart, and therefore accumulation of blood in the venous cavity; and as that only can be the immediate cause which *they agree* in producing, or which is the effect of both (17), the accumulation of blood in the venous cavity must be that cause.

1292. A third commotion, called palpitation, occurs in those persons in whom the pulse occasionally intermits, and at the moment of intermission. This I have frequently observed, and ascertained by feeling the pulse and requiring the patient to say when the sensation was perceived. This commotion is produced in the following manner.

1293. The pulsations of the cava, we have seen (1272), correspond with those of the aorta and other arteries, and consequently at the moment of the pulsation, or the distension of the artery, the auricle is



distended. An intermission of the pulse at the moment it should have been felt, occurs therefore at the same moment with the distension of the auricle ; and proceeding itself from the failure of the heart to contract in due time, both auricle and ventricle are distended at the same instant. Both are thereby excited to contract at once ; the blood in the auricle finding no vent into the heart, is impelled towards the cava, and repelled by the advancing stream ; and the extraordinary distension of the cava and the auricle, together with the fruitless effort of the latter, produce the commotion in question.

The whole passes in an instant ; the renewed action of the heart removing the immediate cause of the sensation, viz. the accumulation of blood in the cava, which is the effect of the stoppage or intermission of the action of the heart.

1294. All these commotions or palpitations I have observed in the same persons at different periods. The first mentioned (1270, &c.) occurs when the heart continues to beat feebly, notwithstanding the quantity of blood pressing into it ; it continues sometimes for hours. The third (1292) occurs when the heart acts feebly and occasionally stops, thereby producing a sudden accumulation of blood in the cava, &c. The second (1282) occurs when the heart is acting feebly, but is more excitable. In the case first mentioned (1270), the latter occurred after both the others, as the patient recovered strength and better health.

1295. Those who suffer these several affections, also frequently complain of a beating in the head,



sometimes accompanied by noise, and sometimes by pain. This beating corresponds with the pulse, and is most remarkable when the pulse is weakest. A violent pulsating pain in the head frequently occurs with a very feeble pulse.

1296. These affections are accompanied by shortness of breath, or oppression of respiration, sometimes extremely alarming to the patient. It is most distressing when the pulse is weakest and the countenance pale. When very great the pulse is rapid and fluttering; and it is immediately carried off by raising the pulse. It is therefore evident, that accumulation of blood in the venous cavity is the immediate cause of this affection also.

1297. In all the cases in which this oppression occurs, the cava is distended. It occurs in persons who are dying; it accompanies aggravated degrees of most other affections which proceed from accumulation of blood in the venous cavity, shown by very weak and irregular pulse and great paleness; it affects those in whom we discover that the cava, &c. were very much distended during life, by their enlarged state observed on dissection; it occurs in animals confined in air unfit for respiration, in which circumstances we know the action of the heart sinks, and therefore the cava is more distended.<sup>1</sup>

1298. This sensation is increased sometimes by lying down. It is evident that the blood from the lower cava and branches, pressed down by the weight of the column of blood in the erect position, when that is taken off by lying down, is permitted to press into the

<sup>1</sup> Goodwyn on Respiration, p. 70. 72.

upper cava and branches. The patient complains on these occasions of a feeling of fulness, or of a load precisely in the seat of the subclavian vein at the top of the sternum.

1299. This sensation, of a load, or a smothering, or a choking, as patients variously call it, has been attributed to water in the chest; and it has even been made the test of its presence. It is however well known, that this sensation occurs for years in persons who never show any further sign of such a collection of serum; and that it appears and disappears, sometimes at long intervals. Morgagni mentions "a most experienced physician," who was completely deceived in his expectations of finding a serous fluid in the chest, when confidently relying on this symptom as evidence of its existence.<sup>1</sup>

1300. Moreover, this sensation is sometimes greater while erect than when lying down, in cases in which water is certainly present in the thorax. This I have observed to occur in a patient who had laboured for many years under a confirmed hydrothorax. On rising up she became very pale and complained of choking, and hastily lay down again. This could not, it is evident, have proceeded from water in the thorax pressing upwards. The symptoms, however, strikingly evinced a rapid accumulation of blood in the vena cava, &c. This, therefore, and not the water was the cause of the sensation in this case.

1301. As this symptom occurs when there is certainly no water in the thorax (1299), and sometimes does not occur on lying down when there is known to

<sup>1</sup> Morgagni on the Seats and Causes of Diseases, Let. xvi, art. 11.

be such a collection (1300) ; and as in all the cases in which it occurs the accumulation of blood is present (1297), and as it is great in proportion to this accumulation, increasing as it increases ;<sup>1</sup> it is evident that accumulation of blood in the venous cavity is the cause of the sensation.

1302. There are two ways in which accumulation of blood in the cava and its branches produces this symptom, perhaps more.

The great bulk of the auricle and the cava, excessively distended, must have some influence in producing this effect.

There is another more efficient. When the remote cause which weakens the action of the heart, prevents at the same time the decarbonization of the blood ; the black blood being the appropriate stimulus of the right ventricle and not of the left, the right acts longer than the left, and a quantity of blood greater than common is thrown into the vessels of the lungs, limited only by their capacity to receive ; which must therefore necessarily produce distress, as we know of no instance of any cavity of the body being unusually distended without producing distress.

1303. Great fulness of the small vessels of the venous cavity must enlarge those parts, which are chiefly composed of them and their contents ; as the liver and spleen. The bulk of these viscera chiefly depends on the quantity of blood accumulated in those veins. As they are very yielding, the liver and spleen are sometimes of enormous size, and of very little more consistence than an immense coagulum ; the great weight of

<sup>1</sup> Goodwyn on Respiration, p. 78.

blood in them, and the exceeding weakness of the veins, from great distension, causing them to fall to pieces on being handled.

1304. In the same way, the softness or broken-down state of the brain, sometimes observed in cases of great fulness of the vessels of the head, may readily be produced. If vessels carrying red blood can by over distension become so weak; those in the brain, which carry the most extenuated fluids in the body, certainly may.

1305. This increase of bulk affects also the membranes constituting the stomach, intestines, mesentery, and omentum. In the mesentery of the small intestines, there is an immense assemblage of vessels of very large size, freely anastomosing. The distension of this assemblage of blood vessels, when a very large proportion of the blood is in the interior, must be very great. The same is true of all these parts; and accordingly we frequently find with a feeble pulse and cold pale skin, notwithstanding great emaciation, a tumid hard abdomen.

1306. The following is an extraordinary instance of distension of the venous cavity extending to the external jugular vein and its branches, and producing the enlargement of the parts in which those veins are situated.

A large woman had been long subject to those affections, which indicate fulness of the vessels of the interior of the head and abdomen, viz. pain in the head, comatose affections, vertigo, disordered secretion of the liver, and ascites. On visiting her one day, I found her with a feeble pulse and cool skin; the veins

of the arms, usually large and prominent, were sunk, and not to be filled by a ligature ; the jugulars enormously distended, the smallest of them being as large, as to external appearance, as my finger. The external parts of the head, particularly the features, were singularly tumid and enlarged ; the lips jutted out, so as to prevent their accurately closing ; the eye-lids were so tumid as to have for some time required exertion to keep them apart ; both lips and eye-lids were exceedingly red. These affections were for some years gradually arising to this excess. She was relieved on this visit, and was able to walk about for some days, but fell again into a comatose state and died. The jugulars after death continued full and prominent.

1307. Stretching the fibres of which the soft parts of the body are composed, produces uneasiness or pain. Unusual distension stretches the fibres of which a tube or cavity is formed, and produces sensation according to its degree, pleasant, disagreeable, or painful.

1308. Pain is produced by excessive distension of the bladder, of the common bile duct by a gall-stone, of the intestines by wind or fæces, of the ureters by a calculus ; but these causes are of comparatively rare occurrence, and multitudes suffer severe pain in every autumnal epidemic, and in various chronic affections, who are not affected by any of those causes.

1309. In these, pain evidently depends upon the varying state of the action of the heart.

In epidemic diseases, the pain returns at particular periods of the day, sometimes when the action of the heart is strongest, often when it is weakest ; and disappears when the state of the action of the heart is



changed: thus, pain often occurs when the action of the heart is very high in fever, and goes off when that action moderates; and often when it is very low, as in the cold fit of an ague, and goes off when that is passed.

In chronic affections, pain almost always occurs when the action of the heart is weakest, and is great in proportion to the weakness; and is relieved by producing increased action of the heart.

In the most severe cases of pain in the head, the stomach, or bowels, that I have ever witnessed, the action of the heart has been exceedingly weak, evinced by very feeble pulse and extreme paleness of the countenance; and the pain has increased in proportion to the decrease of the action of the heart. In these cases effectual relief is obtained at once by raising the pulse. In one instance, when the pain in the epigastrium and along the edge of the ribs was so severe that the patient fainted, while held up in bed by assistants, the pulse being exceedingly weak, hot toddy was administered with immediate relief; and the pulse being felt immediately on the patient's being relieved, was found to have become full and soft. This pain returned repeatedly every day, (until effectual relief was obtained by other means of slower operation, but durable effect,) and never without the pulse sinking, and was always immediately relieved by raising the pulse in the same way. That the mode of raising the pulse had nothing peculiar in it, is evident from the same effect following in some instances the use of the warm or hot bath; in others, from a hot draught, as in one instance occurred to a patient of mine from drinking a hot draught of infusion of senna, instant relief fol-



lowing ; and in other instances from an emetic which discharged nothing but the medicine and water ; in all of which cases one effect is produced, raising the action of the heart.

1310. Except in a few instances, therefore, pain depends upon the varying state of the action of the heart ; and as this varying state produces a varying state of distension of the arteries and the veins ; (strong action throwing an unusual quantity of blood into the arteries, and weak action leaving a proportionate quantity in the veins ;) it is evident that pain depends upon the varying state of distension of the arteries and veins. When we consider further, that the pain which occurs with weakened action of the heart, increases as that action becomes weaker, and therefore as the distension of the venous cavity increases, it is evident that this distension is the immediate cause of the pain.

1311. If we consider how large a portion of the whole structure of the body the arteries and veins are (1214) ; how large a proportion of the whole weight of the body the blood constitutes, about a third of the soft parts ; with what force and rapidity this immense mass is unceasingly driven ; how great an effect *the sudden change of the direction* of such a mass must have on vessels already full, and only capable of yielding gradually ; and how completely this change of direction is instantly effected by sudden diminution of the action of the heart, sometimes as great as sudden ; we cannot doubt that the magnitude of the cause and the suddenness with which it operates, corresponds with the magnitude of the effect and the suddenness with which it is produced.

1312. Unusual distension of the arteries or veins, therefore, produces pain; but as that of the arteries proceeds from increased action of the heart, if that action be weak, it is certain that the pain does not proceed from unusual distension of those vessels: and, as in proportion to the weakness of the action of the heart is the fulness, and therefore the distension of the venous cavity; when that action is weak, the pain must, if it arise from unusual fulness of blood in the part, proceed from accumulation of that fluid in the venous cavity.

1313. Even when pain is accompanied by increased action of the heart, there must be an unusual fulness of the veins of the part. From the superior capacity of the veins, from their laxity and disposition to yield, and from the comparative straitness of the arteries, and their elasticity and disposition to contract, the distension of the latter vessels cannot take place in a part without the previous distension of the veins into which they pour the blood.

1314. Fulness of the venous cavity, therefore, is the cause of pain in those parts in which the branches of this cavity are situated, when the action of the heart is weak (1312); and it is necessary to the production of pain even when the action of the heart is increased (1313).

1315. An increase of the quantity of blood in the vessels of a part, increases the redness and heat of that part, and renders it more sensible.

If the quantity of blood sent to the external surface be greatly diminished, its colour, temperature, and sensibility are lessened. If an increased quantity be

sent, the colour, temperature, and sensibility are increased. If an increased quantity of blood be left in the vessels of an external part, the same result is observed in that part; thus, when the vessels of the adnata are distended with blood, the eye is red, hot, and extremely sensible. There can be no doubt that the same cause produces the same effects in internal parts.

1316. Accumulation of blood in either arteries or veins produces these effects. We have shown that such accumulation cannot exist in the former without previous fulness of the latter; and it is evident that when redness, heat, and increased sensibility occur with very weak pulse, they cannot be the effect of distension of the arteries; and as they increase with the increasing weakness of the pulse, and consequent increasing fulness of the venous cavity (1218), it is evident that they are produced by accumulation of blood in that cavity.

1317. Tumour, pain, heat, redness, and increased sensibility, are therefore produced by an accumulation of blood in the venous cavity.

In the cases abovementioned (1266. 1268) of distension of the cava, pressure of that part produced considerable pain. If distension of a large vein make it so sensible, that pressure produces pain; the distension of a congeries of small veins, as in the liver, the spleen, the membranous viscera of the abdomen, or in the head, producing enlargement of all, by mutual pressure must produce pain.

1318. The head is in general the part first disordered by accumulation of blood in the venous cavity. This arises, 1st, from the immediate and free commu-

nication between its large veins and sinuses, and the cava; 2d, from its having so great a proportion of blood continually passing through it, on which account a check must leave a proportional quantity of blood in it: if, for instance, there be, as has been calculated, four times as much blood circulated through the head as through any other part; by a total obstruction to its return, as by ligature, four times as much would accumulate in the head in a given time, as long as it could receive it, or as much in the fourth part of the time; and the result from a partial check would be proportional; 3d, from its being so near the heart, and the course to it so direct, that it receives the very first jet of blood when sudden accumulation produces increased action of the heart; 4th, from its unyielding covering, which gives greater effect to the pressure: we find that bearing on a distended part, as the liver, or the distended cava (1317), produces pain; so the permanent pressure of the skull on the distended parts within must have the same effect.

1319. When pain in the head approaches gradually and moderately, it is preceded by a sensation of fullness in the middle of the lower part of the forehead, and extends gradually to the top of it, and to the sides of the head. This is more perceptible on shaking the head suddenly, or on making a slight false step; and sometimes in these circumstances a slight pain is felt that had not before been perceived. It is evidently produced by the same cause that produces the pain; because, as the uneasiness becomes more and more considerable, it evidently runs into and is lost in the sensation of pain. It however frequently does not

amount to pain, but lingers a considerable time without being sufficiently striking to induce the sufferer to think of medical aid.

1320. This fulness is accompanied by a want of recollection, an unusual difficulty in connecting ideas and perceiving the relations of things, a wandering of mind which disables the person from pursuing an argument, and finally a total confusion of intellect, and a vertiginous sensation, which after a length of time spent in fruitless efforts compels him to give up the attempt.

When the affection is so considerable as this, the fulness often extends to the integuments of the forehead. The skin feels full and tight drawn, and there is a disposition to rub it hard, as if thereby we could get rid of it.

1321. Vertigo sometimes accompanies this affection of the head, and sometimes, in high degrees of it, double vision, so that a man at the distance of an hundred yards, or less, appears like two. The patient is in these cases pale and sallow, his pulse weak, and some of the effects of accumulation of blood in the venous cavity, already mentioned, are present, as well as some to be mentioned.

That vertigo is produced by distension of the vessels of the head, is evident from the effect of stooping with the head down in producing redness of the face; and the weakness of the pulse common in those who are affected with vertigo, and particularly when most affected, shows that the blood is accumulated in the veins.

1322. A disposition to sleep proceeds from the same



fulness of the vessels of the head ; it often precedes pain, and often exists without it (1281). The different degrees of these comatose affections have received different names. They are all one, are often seen in aged people who are particularly liable to accumulation of blood in the interior veins (1215), and frequently end in sudden death.

1323. False perception and delirium are also effects of accumulation of blood in the venous cavity. They very often occur with great coolness and paleness of the skin, and sometimes with very cold surface, and with feeble pulse. These affections are very common, indeed almost universal as the pulse sinks, when the heart is about ceasing for ever.

1324. The severest cases of pain in the head I have ever met with, have been accompanied by strong marks of extreme fulness of the venous cavity, viz. very pale countenance and very weak pulse. Frequently, however, pain in the head is first felt on some increase of the action of the heart. But it is evident from the great size of the veins of the head, and their free communication with the cava, that unless there is some obstruction in them, increased action of the heart cannot produce much distension of the arteries of the head (1313). It is certain, also, that in those cases in which pain in the head is felt in consequence of the increased action of the heart, there is accumulation of blood in the venous cavity ; as in the cases above-mentioned (1309), and also in the rise of the hot fit of a fever. It is moreover certain, without such previous distension of the veins, so small an addition as can be made by a slight increase of the action of the



heart, could not produce pain, or pain would be produced by walking rapidly a short distance. It is therefore by the co-operation of distension of the arteries with previous distension of the veins, that the effect is produced in these cases.

1325. In order to this the arteries must carry into the head more than the veins carry out. This happens in the following manner. When there is a great accumulation of blood in the interior veins in the cold fit of a fever, there is some agitation of the body, viz. some involuntary muscular effort, which compresses particularly the abdominal viscera and all the blood vessels in them. This necessarily sends on the blood to the heart, and excites it to increased action, at the same time that the veins constituting that part of the venous cavity situated in the abdomen, are by the compression contracted, and the heart is supplied with an additional quantity of blood, without withdrawing from other parts of the venous cavity, more than it did before the increased action took place.

In another case the same is effected in a different way. If a person labouring under considerable accumulation of blood in the venous cavity, as in some cases before alluded to (1309, &c.), take a draught of spirit and water or wine, the stimulant is applied to the stomach and bowels and causes them to contract considerably, as is evinced frequently by discharges of wind; the contraction thus produced has the same effect precisely as to sending on blood, &c. as in the former case.

1326. In the same way the other affections of the head abovementioned (1319, &c.), though produced

by accumulation of blood in the venous cavity alone in very many instances, are sometimes also produced by the co-operation of some increased action of the heart, with previous distension of the veins of the head.

1327. The preceding are affections of the internal parts of the head, produced by distension of the internal jugular veins and the sinuses of the brain. The distension of the external jugulars in some persons gives a deep dusky red colour to the cheek, at the very time that other parts, even of the skin of the face, are pale and sallow, and fills the vessels of the adnata, and gives the eyes a heavy and inanimate expression.

1328. This suffusion renders the eyes extremely sensible to light, and in a high degree makes them sore and painful, even when kept continually closed. We have seen that great fulness of the vessels of a part renders it very sensible (1315). It often happens, that when the strongest symptoms of distension of the jugular branch of the venous cavity are present, viz. intense pain in the head and comatose affections, with weak pulse, the eyes are extremely sensible to light, and the ears to the least sound. In one instance, with feeble pulse and cool pale skin, and intense headache, the eyes were impatient of light, and, on the falling of something in the house, the patient was excessively alarmed, and "felt as if the house was coming down." In another, a rap or two on the head of a drum at the front door, so startled the patient lying in a stupor, that he could hardly be held in bed.

1329. Excessive sensibility to smells is another effect of the same cause. The case stated above (1306) was a remarkable instance of several of these affections of the head, internal as well as external.

1330. A dull and heavy pain under the sternum, sometimes very severe, is frequently experienced by those who complain of several affections already mentioned, and others also, but particularly of oppressed respiration. The severity of the pain and the difficulty of respiration are proportioned to the weakness of the pulse: in the case of an elderly woman who has frequently been my patient, with feeble pulse and singularly white and shrivelled countenance, the pain was excessive, and the difficulty of breathing almost amounted to suffocation.

1331. A dull and heavy pain is frequently experienced also under the left clavicle, sometimes under the right. It is exactly in the seat of the subclavian vein and the great veins which unite to form it, and the pain in the shoulder frequently complained of, is precisely in the spot before mentioned as being the limit of the venous cavity in this direction (1244).

1332. The laxity of the structure of the hepatic branch of the venous cavity (1233) allows of considerable distension without much inconvenience. But if it be very great, or suddenly produced, more or less uneasiness, and even severe pain will arise, especially on pressure.

1333. Pain from sudden distension of the venous cavity, is most apt to be felt in the small of the back, in the great plexus of the vessels of the mesentery, in consequence of their very great number and size, and their almost total want of support (1230).

1334. When this distension has arrived at a certain height, it produces general uneasiness or pain in the abdomen; and before it has arrived at that height, the

tender state of the viscera may be discovered by pressure, frequently before the patient is aware of the danger. This is true of all parts of the abdomen, but the epigastrium is the part in which this tenderness is most apt to be felt. This arises from the circumstance of the stomach's occupying the upper part of the epigastrium, and lying in contact with the inner surface of the integuments; whereby it is more exposed to the influence of pressure than the rest of the alimentary canal, which is protected by the omentum spread over them.

1335. When in this state of tenderness or inflammation, and of pain on slight pressure, a sudden increase of the quantity of blood produces the most excruciating pain, first in the root of the mesentery, and extending thence to the different portions of the mesentery in the sides and front of the abdomen, sometimes very rapidly.

1336. This increase of the quantity of blood in these parts, is produced either by sudden increase or diminution of the action of the heart.

1337. When the veins are excessively full, evinced by feeble pulse and pale surface, and the viscera are very tender and sore on pressure, sudden distension of the arteries produces very severe and acute pain. This is particularly liable to occur in the abdomen. An injection of the arteries or veins of the mesentery shows that both are very numerous. The arteries in a good preparation appear almost to touch one another. The veins are much more dilatable; and if, when very much distended, and so numerous as to give an uniform purple colour to the parts in which they are situated, a sudden and forcible distension of the arte-



ries lying among them take place, very acute pain must be produced, evinced by the expressions used by the sufferers, of stabbing or shooting pains, burning, &c.

1338. This state of the veins is a frequent occurrence after child-birth. The viscera having been long compressed, and the pressure being suddenly taken off, the vessels yield and become distended, sometimes excessively ; thus producing tenderness discoverable by pressure, but of which the patient is not always aware. In these circumstances an improper use of stimulant diet or drink, or the sudden access of a chill and fever, produces increased action, which is sustained by the blood accumulated about the heart, without diminution of the quantity in remote parts of the venous cavity, as in a case formerly stated (1325).

1339. This pain is also produced in the most violent degree, by such diminution of the action of the heart as is followed by extreme distension of the venous cavity ; the pain and the burning heat in the abdomen being accompanied by remarkable paleness and weak pulse, and becoming more and more intolerable as the pulse sinks, until the last moment of life. In one instance I visited a lady in the third week after child-birth, and found her complaining of a severe burning pain in the abdomen. She had had some uneasiness in that part for some days ; and on the day of the visit had imprudently dined with the family and was attacked at the table. The pulse was weak, the countenance very pale. She was sinking fast, and as the pulse died away the pain became more and more severe, and at the last moment when the pulse was gone, she tore open her clothes, exclaiming that she was burning up.



1340. If, while the vessels of the abdominal viscera are so distended, their muscular fibres be excited to contraction, the pain is greatly increased; the contraction upon the distended vessels producing the same effect as pressure in any other way. Thus, the regular continued pain is liable to occasional exacerbations, in consequence of contraction, followed by comparative ease, in consequence of relaxation.

The operation of cathartics is for this reason, in such cases, extremely painful.

1341. The liver is not so much affected by sudden increase of the action of the heart as the stomach and intestines, for two reasons. First, almost the whole of the blood sent to it is carried by a vein: hence, though it be equally full of venous blood with the intestines, the force with which its vessels are distended cannot be increased by the action of the heart. Secondly, the increased action of the heart withdraws blood very rapidly from the veins in its immediate neighbourhood, and therefore from the hepatic veins, which directly tends to reduce the distension of all the veins of the liver.

1342. The distension of the hepatic branch of the venous cavity extending to the veins of every part of the intestines (1229), the hemorrhoidal veins partake of it; and from being exposed to the strong pressure of the sphincter ani, sometimes suffer very severely.

1343. The emulgent veins and their branches in the kidneys, are subject to distension in common with every other part of the venous cavity. A dull uneasy sensation in that neighbourhood is commonly experienced for some time before an attack of nephritis;

indeed many cases thus denominated are no more than a dull but severe pain without any febrile action ; and the most excruciating pain in the kidneys is sometimes accompanied by very pale and cool skin, and very weak pulse ; and by many symptoms or effects of distension of the venous cavity.

1344. The hypogastric is the lowest branch of the venous cavity, and more exposed than any other to the pressure of the column of blood in it ; and accordingly we find accompanying the marks of distension of this cavity, an uneasy sensation and pain, sometimes very severe, low down in the back and in the hips, parts from which the branches of the hypogastric veins carry the blood.

1345. Some of the severest cases of accumulation of blood in the venous cavity are accompanied by a very troublesome, dull, heavy pain in the top and forepart of the thigh, exactly where the crural vein is situated ; which is the limit of the venous cavity in this direction (1240).

1346. When the valves of the saphena become incapable of fulfilling their office, the weight of the column of blood in the venous cavity pressing into that vein, produces a pain which extends down the leg. The same effect is sometimes produced when the valves have not become useless, by the load of blood in the cava preventing the free passage of that fluid from the saphena.

1347. Pain from distension occurs in one or another part of the venous cavity, according to their disposition to yield ; which arises from the local operation of the causes, as of spirit on the stomach and head ; and

may originate in the patient himself, or in his parents, and descend to him as any other peculiarity in the structure of the body. Sometimes the head is violently affected, or the back, or some part of the bowels, or the stomach, liver, or spleen. They may be affected singly or together with one or more other parts; and sometimes every part is at once affected.

1348. Pain frequently shifts from one part to another. That part most sensible, and most easily affected by a distending force, must suffer first; and the distension may not be great enough to be felt in any other part. But if that part be relieved by suitable applications to it, the part next in liability will suffer. Thus, distension of the vessels of the external parts of the head, forming the external jugular, has been removed in a very little time by a blistering plaster, or other application, with the consequence of producing stupor and comatose affections, effects of distension of the internal jugular branch (1322): in one case death followed in twenty-four hours, in the other it was predicted, and occurred in a few days.

1349. We have seen that accumulation of blood in the venous cavity occasions distension of the vessels of the head (1281. 1295), and such an enlargement of the vessels of the adnata, that it becomes inflamed (1306). In that case, when the inflammation of the eyes had arisen to a very great height, stupor came on. The connexion of these affections, as effects of one cause, was shown in the epidemic of 1825 in Winchester. A number of persons had stupor, or delirium; a number of others had ophthalmia; both were common.

1350. The same accumulation of blood in the jugu-

lars, sometimes produces a similar affection of the mouth and fauces. They are sometimes simply red and painful; at other times the inflammation terminates in sloughing of small portions of the skin, and the spots are called aphthæ. In children in the same way are produced redness and swelling of the gums; which are often attributed to teething, sometimes six or eight months before they have teeth; and are entirely carried off by a cathartic of calomel.

1351. The internal nares also are sometimes affected in the same manner; whence a discharge of mucus or of a thinner fluid, with sneezing, &c.

1352. It is evident that in all these cases the distension of the minute veins, branches of the venous cavity, must extend to the corresponding minute arteries. This is manifest from the consideration that they are continuous tubes; as well as from the evident effect of the co-operation of the pulsation of the jugulars and the carotids above mentioned (1281).

1353. When these affections result from the operation of a remote cause capable of affecting great numbers (1203), sore throats, more or less malignant, or putrid as they are called, and catarrhal affections or influenza, are common or epidemic, as above observed of ophthalmia (1349).

1354. Muscles cease to act when their veins are tied, as well as when their arteries or nerves are tied or cut; but they continue to act when their veins are cut. From this it appears that accumulation of blood in the veins of muscles is an impediment to their action.<sup>1</sup> “K. Boerhaave ascertained by actual expe-

<sup>1</sup> Monro's Anatomy, p. 330.



riment, that when a ligature is applied to the vena cava above the iliac, paralysis of the lower extremities is brought on ; as when the aorta is tied, as was done by Steno in the same situation. And this is a further proof of what we have said elsewhere of the stupifying qualities of the blood which flows into the veins."<sup>1</sup>

A very familiar instance of the same effect occurs on tying up the arm for bleeding. If there be some delay, the arm becomes purple, and the action of the muscles is sensibly impeded. If this proceeded from compression of the nerves, it would be felt sooner ; but by the time the veins have filled, indicated by the colour, the loss of power is perceived.

If, therefore, the venous blood be confined in a muscle, it becomes less capable of action.

1355. A due supply of arterial blood is also necessary to the free action of a muscle.

1356. When in consequence of diminished action of the heart there is an accumulation of blood in the venous cavity, the power of the muscles is impeded, both by the want of arterial, and the presence of venous blood ; whence must arise general debility of the muscles.

1357. When there is a great accumulation of blood in the venous cavity, the exit of the blood from the azygos, and from the coronary veins of the heart, is impeded ; and there must arise an accumulation of venous blood in the muscular parts from which it flows through these veins into the cava. The heart and the intercostal muscles must thereby be debilitated : whence must arise weak action of the heart (595),

<sup>1</sup> Richerand's Physiology, p. 421.



and consequently weak and occasionally halting or intermitting pulse; and weak action of the intercostal muscles, and consequently slow respiration and inability to speak above a whisper. These symptoms I have often observed in cases in which there existed extreme accumulation of blood in the venous cavity. This reciprocal operation, of weakened action of the heart producing accumulation of blood in the venous cavity, and of the latter increasing the former, is observed on many occasions (1208).

1358. From this view of the subject, we discover the absolute need of strong valves at the mouth of the vena azygos, and of the coronary veins of the heart. For, although they do not protect the muscles of respiration, and the heart from the destructive effects of the presence of venous blood in extreme cases of accumulation of blood in the cava, they for a long time keep off the evil. They enable the heart particularly to free itself from the incumbrance. The blood pressed forcibly out of the coronary veins during the strong contraction of that organ, passes the valves and is secured in the cava, leaving freedom of action to the main spring of life.

### *Effusions.*

1359. When the principal artery is tied after amputating a limb, the blood issues with great force from the smaller branches; and it frequently happens, when every one that can be observed is tied, that in a short time there is a considerable discharge from some minute vessel, dilated by the distending force. If an artery be tied, without amputating the limb, the blood

is forced into the smaller branches above ; and they are so enlarged as to maintain the circulation, by anastomosing with the smaller branches which go off from the artery below the ligature.

1360. So, if there be obstruction to the passage of blood through a vein, the minute arteries which pour their contents into it, are distended ; and the fluid they contain is pressed with great force into the branches above ; and through the small vessels which carry serous fluid, a great additional quantity now passes.

Thus, œdematous swellings of the legs are very common symptoms when the pregnant uterus, or any tumour, presses on the external iliac veins : so also, an enlarged and obstructed liver produces a serous effusion into the peritoneal cavity. Indeed nothing can be plainer than if a fluid be passing through a vessel branching into two others, stopping its course through one will accelerate it through the other, and increase the quantity that passes.

1361. As serous effusion takes place in consequence of obstruction to the free course of the blood through the veins (1360), and the distension, thence arising, of those veins and their branches above the obstruction, it is evident that the same effect must flow from a similar distension proceeding from accumulation of blood in the whole venous cavity. It is not material whether the obstruction to the free course of the blood from the minute branches into the venous cavity, proceeds from the pressure of a tumour, or from such fulness of the venous cavity as forbids its free entrance. Such fulness of the venous cavity therefore produces serous effusion ; and operating on the exhalents in

the neighbourhood of all the minute branches of the venous cavity, the effused fluid passes at one part or another, in proportion to the fitness of their state at the time for the purpose.

1362. The passage by the kidneys is the readiest ; because, originally adapted to the purpose of carrying off the extra fluids and saline parts of the blood, they easily permit an additional quantity of serous fluid to pass ; and when they are in a healthy state, or when not themselves deranged by the pressure of accumulated blood, they are generally sufficient for the purpose. If the diminution of the action of the heart be not only sudden but great, there frequently occurs a very large discharge of pale urine in a very short time.

1363. When the kidneys do not readily permit the passage, the pressure falls on the exhalents in the neighbourhood of the minute branches of some other branch of the venous cavity.

1364. As from the structure of the hepatic branch, it is peculiarly liable to distension and to suffer accumulation of blood, effusion is very common from the exhalents near its minute branches into the peritoneal cavity.

1365. As the whole substance of the intestines, including the peritoneal coat, is so thin, and the arteries running through it supply moisture to both surfaces, viz. that belonging to the peritoneal cavity, and that belonging to the cavity of the intestines ; it is plain that the same obstruction which produces effusion into the former cavity, may likewise into the latter ; and hence the discharge of serous fluid in diarrhæa, and likewise the water-brash.

1366. The same effect is produced by great accumulation of blood in the venous cavity, obstructing the different small veins that issue from the different parts of the thorax, viz. effusion into the different thoracic cavities: and as they are all very closely connected, effusion into one alone is not common; and hydrothorax and hydrops pericardii very often occur together.

1367. The same obstruction also produces an increased effusion from the vessels constituting the bronchial glands, and this fluid having its thinner parts carried off by the passing and repassing of the air, becomes thick and is thrown up by coughing. The thicker consistence of this discharge may proceed from its being poured out more consistent than usual, as well as in greater quantity.

This discharge is habitual in many people as they grow old; that is, as accumulation of blood in the venous cavity increases.

1368. In high degrees of accumulation of blood in the venous cavity, the passage of the blood from the bronchial veins being obstructed, the fulness of those veins makes the bronchi more sensible to impressions and more irritable. Accordingly we find these high degrees, as when the respiration is very difficult (1296), or when there are considerable pain and soreness of the epigastrium (1334), often accompanied by an irritable state of the lungs, evinced by a slight cough, at first and for a considerable time dry. The same fulness of the veins which produces an irritable state of a part, increases the natural discharge of that part (1367); and consequently, the cough which for a time is dry, is at length accompanied by a mucous discharge.



at first small, but gradually, and sometimes rapidly increasing, it becomes large.

1369. Effusion on the skin of the head and face arises from the same cause, when the action of the heart is diminished. Hence it is we so often see cold clammy sweats confined to the head and face, when the pulse is feeble and the surface pale and cool; the veins of these parts being, alone of all the external parts, branches of the venous cavity. These effusions on the head and face increase as the action of the heart sinks in death, and the veins fill. They occur also on partial suspension of the action of the heart, as in fainting.

1370. There is yet another branch of the venous cavity greatly affected by the accumulation of blood. The vessels of the uterus pour out continually a fluid similar to that which lubricates all the interior surfaces. The same obstruction which increases effusion into the peritoneal and intestinal cavities, causes an increase of that into the uterus. This may be considerable before it is much noticed; and, it is evident, may like all the others occasionally be excessive, and put on different appearances more or less opaque.

### *Hemorrhages.*

1371. It needs no argument to prove that these exhalent vessels, so capable of enlargement, may occasionally under great pressure pour out red blood. The nature of the effused fluid must depend on the state of the vessels through which it is forced. Those vessels which ordinarily pour out a pure lymph, are capable of pouring out a thick mucus, or even blood.



itself; just as the small vessels in different parts of the body, which do not ordinarily carry a visible fluid, are occasionally so dilated as to carry red blood. Thus, the vessels of the adnata, usually invisible, are sometimes so filled with blood as to make the whole ball of the eye red. Even the delicate vessels of the cornea become opaque, and sometimes contain red blood.

1372. So the vessels of the kidneys, which ordinarily pour out a limpid fluid, frequently pour out blood.

1373. I have seen a woman one of whose breasts discharged blood and the other milk, without any thing else remarkable in the case.

1374. So blood is sometimes discharged from the stomach and bowels. It may be poured out by the vessels of the liver through the bile ducts, or may proceed from the vessels of the stomach or bowels. In these hemorrhages the blood is often quite black, and its texture so broken, that it has sometimes very much the appearance of coffee grounds.

1375. In ulcers of the legs, with varicose state of the saphena, the granulations while the patient is lying down, are florid and healthy; but if he stand up a few minutes, they acquire a dark red colour and frequently bleed. This is nothing more or less than a hemorrhage from the minute vessels opening on the surface of the ulcer, in consequence of the difficulty of passing the blood into the saphena, in opposition to the pressure of the whole column of blood in the venous cavity bearing upon them in the erect posture. By lying down this is taken off and the bleeding stops, and the healthy colour returns.

1376. Hemorrhage from the same cause occurs sometimes in the head and produces apoplexy. I have seen patients die in this disease without any marks of febrile action whatever, and with so small and weak a pulse as to excite surprise.

1377. Alarming hemorrhages from the gums occur with pulse perfectly moderate or weak, with cool skin, head-ach, and most of the preceding effects of fulness of the venous cavity. In one case it was preceded by a discharge of blood from the kidneys.

1378. It was accompanied by hemorrhage under the skin in many different parts of the body, forming petechiæ. They were of different sizes. This was not the first, though it was the most violent attack. It was usual for the spots to turn very black and be a week going off. The smaller ones on the arms came through the cuticle by degrees, and several of them I scratched off like minute black scabs.

In another case, on opening the petechiæ dark blood flowed out for some time, showing that this affection was a true hemorrhage.

1379. The discharge of blood from the hemorrhoidal vessels often occurs with symptoms proceeding from the same fulness. Cullen states that "it frequently happens, even before the tumours are formed, *and more especially before the blood flows*, that various disorders are felt in different parts of the body, as head-ach, vertigo, stupor, difficulty of breathing, sickness, colic pains, pains of the back and loins, and *often*, together with more or fewer of these symptoms, there occurs a considerable degree of pyrexia."<sup>1</sup>

<sup>1</sup> Cullen's First Lines of the Practice of Physic, DCCCCXXVIII.

From these vessels being the lowest part of the venous cavity, this hemorrhage is more frequent than almost any other. It becomes more frequent and more free as the patient becomes old and feeble, that is, as venous plethora increases.

1380. Menorrhagia is another hemorrhage, which never occurs without symptoms or effects of accumulation of blood in the venous cavity; such as pain in the head, and the several symptoms mentioned in the preceding passage; and when these symptoms are in highest degree, the discharge is greatest.

1381. It is to be observed that all these hemorrhages have occurred with the whole surface pale and very cold, with pulse weak or even imperceptible, and all the effects of accumulation of blood in the venous cavity that have been stated; and that in some instances, with unusually weak pulse, hemorrhages from various parts alternate with one another.

1382. Some of these hemorrhages however are accompanied by strong pulse, and have been called active hemorrhages, in contradistinction to those called passive, which are the subject of the preceding observations.

1383. These active hemorrhages are however universally preceded by strong marks of the same fulness, as in the hemorrhoidal discharge (1379), and in epistaxis;<sup>1</sup> and increased action is itself an effect of suddenly increased fulness of the venous cavity (1262).

1384. This view of the manner in which hemorrhage occurs, is strengthened and confirmed by the following considerations.

<sup>1</sup> Cullen's First Lines of the Practice of Physic, DCCCXIII.

The sum of the capacities of the small arteries is greater than that of the large; the veins are of greater capacity than the corresponding arteries; they do not receive the whole of the contents of the arteries, a considerable portion going off by the exhalents; they are yielding and would easily receive an additional quantity; and the communication between the arteries and veins is perfectly free, the blood often springing in jets from an orifice in a vein of the arm or leg, particularly if the ligature be near the wrist or the ankle. It is not then conceivable that the arteries should force through their minute exhalent branches, a part of the red blood, as long as the veins continue in the above unobstructed state. Such an occurrence can only take place from the freedom of entrance into the veins being destroyed, which, excepting the few instances in which a tumour may exist in such circumstances as to press upon a large branch of the cava, can only be the effect of excessive fulness of the venous cavity; a state very frequently occurring, and marks of which accompanied every case of hemorrhage I ever met with.

1385. The manner in which the hemorrhage commences, and the colour of the discharge in the first instance, also confirm the view given. The discharge commences very moderately, and gradually becomes considerable in quantity; at first it is a serous or mucous fluid with a bloody tinge, and the colour by degrees becomes more and more red. This is what we observe in hemoptysis, in hematuria, and what we know occurs in menorrhagia, and likewise in the hemorrhoidal discharge.<sup>1</sup> So likewise when these he-

<sup>1</sup> Cullen's First Lines on the Practice of Physic, DCCCCXXVIII.



morrhages are declining they gradually diminish in quantity and in colour until they cease entirely.

1386. Hemorrhages are very apt to be periodical. There must consequently be, after the cessation of each hemorrhage, a gradual renewal of the superfluous blood. That superfluous blood must centre in the venous cavity, because being more than the system requires, or the heart can *continue* to circulate, it is necessarily left in the cava and its branches (1214 to 1218. 1250, &c.).

1387. A fourth consideration is, that if there were not a store of blood in the system more than necessary for its purposes, it would be impossible for the pulse to keep up as it often does in hemorrhages. A discharge from an artery, or from a vein between the valves and the arteries, (which is an immediate drain from the arteries,) equal to that which sometimes occurs from the different branches of the venous cavity, would excessively debilitate the patient, would sink him at once into the grave; particularly when we consider the extreme weakness of the pulse in many of these cases, even before the hemorrhage commences. But there being in the venous cavity more than the heart is in a situation to send on, a discharge from that cavity, a remote branch of it particularly, is not injurious, until it affects the supply called for by the heart.

1388. Hemorrhage, therefore, active or passive, is the effect of accumulation of blood in the venous cavity.

1389. Without a periodical discharge of blood, women are not healthy. They are therefore so constituted as to make more blood than is required for themselves alone. Hence, there is a continual increase of



blood from one periodical discharge to another. This excess must, from the structure of the sanguiferous system, accumulate in the venous cavity (1386). The uterine veins are at the lowest part of this cavity, and sustain the pressure of the whole column of blood in it. They are so constructed as to yield readily, and are capable of great dilatation. The arteries too which enter into them are capable of dilating with them ; and it is evident that the exhalents partake of the general enlargement.<sup>1</sup>

1390. The unavoidable consequence of a continual accumulation of blood in this structure, is, sooner or later, such a dilatation of the whole of the vessels as to allow the blood to find vent in some direction. The only natural one is that through the exhalents, which like those of other cavities, in common, pour out a serous fluid to moisten the internal surface of the uterus.

1391. That the periodical discharge of blood is from these vessels, is evident from the following considerations.

In many young women at their first efforts to menstruate, a serous fluid is discharged instead of blood : in many women, when they are about finally ceasing, the same thing happens : at all periods of life, the fluid poured out towards the close of menstruation becomes less and less sanguineous, till at length the discharge is entirely serous and finally disappears : when there is an unusual disposition to menstruation, the evacuation returning too frequently and being too free, it is very common for the serous discharge to continue

<sup>1</sup> Bell's Anatomy, Vol. 3, p. 333. Wistar's Anat. Vol. 2, p. 207.

throughout the interval: when menstruation is obstructed, and efforts are made to restore it, a serous discharge is often, if not generally, the precursor of the red.

1392. The actual presence of fulness of the venous cavity, at and just preceding the time of the first appearance of the menstrual discharge, is strongly indicated by the presence of many of its effects. Such, are pain in the head, back, loins, and abdomen, giddiness, cold feet and hands, and many others.

1393. All these symptoms disappear on a free discharge of blood from the uterine vessels; and that the relief is the consequence of diminishing the accumulation of blood in the venous cavity, is shown by the same relief following a discharge of blood from any other part of the cavity, as the stomach and bowels, or liver.

1394. Preceding every return we find the same symptoms which gradually increase, sometimes to a very high pitch, until the menses appear; and immediately after they moderate, and cease on a free discharge.

1395. When the discharge does not take place at all, the effects of fulness of the venous cavity continue to distress the patient.

1396. When the menstrual discharge is about ceasing and becomes irregular in time and quantity, in those who have been regular and healthy, the effects of accumulation of blood again make their appearance.

1397. An accumulation of blood does then exist in the venous cavity at the time the menses are about to appear; and if they do not make their appearance, the

fulness of the vessels continues and increases until a menstrual discharge takes place, or until a vicarious one is substituted.

1398. We have seen that the excess of blood natural to women (1389) must necessarily accumulate in the venous cavity, and bear with special weight on the uterine vessels; that these are of such a structure, that the necessary consequence of such accumulation is an evacuation of red blood from the exhalents which moisten the internal surface of the uterus (1390); that the periodical evacuation women are subject to does pass by these vessels (1391); and that, judging from its effects, accumulation of blood in the venous cavity does actually exist to considerable extent, and is increasing up to the very time of the appearance of the discharge.

It therefore follows that the excess of blood natural to the constitution of women gradually filling the vessels, and from the structure of these centring in the venous cavity, produces the various symptoms enumerated above (1392), and bearing particularly on the uterine branch, and at length arising to the height of forcing a passage through the exhalents, is the cause of menstruation.

1399. Hence it must be periodical; every return being when the accumulation arises to the height above mentioned.

Circumstances may and do vary this in different, and even in the same women. The periods vary from three to five weeks, not to speak of extraordinary instances. The quantity varies as much as the time. The vessels concerned must, in different cases, neces-

sarily differ with respect to their disposition to yield. Sometimes they are so indisposed to give way in healthy women, that excruciating pain in the head, back, and abdomen precede every appearance, and the discharge is trifling after all. The same difficulty that diminishes the quantity is evidently capable of lengthening the interval.

1400. That the excess of blood natural to women, seeking vent, is the cause of menstruation, is strongly supported by the fact, that a great variety of the effects of accumulation of blood in the venous cavity follow the continued retention of the menses. Such are shortness of breath and palpitation, tumid abdomen from enlargement of the viscera, swollen features, pain in the head, back, loins, and abdomen, want of recollection, vertigo, comatose affections, general debility, weak, irregular, or intermitting pulse, paleness and coldness, pale urine, œdematous swellings, leucorrhœa, hemorrhages from the liver, and other parts; in short, the whole list of affections proceeding from accumulation of blood in the venous cavity (1265 to 1388). Most of these I have seen follow suppression of the menstrual discharge, and disappear when the obstruction was removed.

1401. It is further confirmed by the strong resemblance, or rather identity, of the symptoms which precede other periodical discharges, and follow their suppression.

The hemorrhoidal flux often recurs at stated periods. Before the appearance of the blood the patient is affected with head-ach, vertigo, stupor, difficulty of breathing, pains in the back, abdomen, &c. All these



are entirely relieved by a free discharge of blood. On the suppression of the discharge in the decline of life, comatose affections of the highest grade appear.

1402. When the quantity of blood accumulated is very great, the discharge is profuse, and is called menorrhagia. That this is the effect of extraordinary accumulation is evident from the accompanying symptoms, effects of a high degree of accumulation of blood in the venous cavity (1380. 1392).

1403. The accumulation may be so great as to prevent the appearance of the menstrual discharge. Retention of the menses, or their failure to appear at the proper time, and irregularity for some time after, may readily occur from the vessels being less disposed than common to yield: but the obstruction or suppression in those persons who have for some time regularly menstruated, generally occurs under the active operation of some of the causes of weakened action of the heart, and therefore of accumulation of blood in the venous cavity; and effects of great accumulation also appear, viz. pain in the head, back, loins, and abdomen, vertigo, palpitation, cold feet and hands, &c.

1404. The fact of menorrhagia and amenorrhœa being preceded and accompanied by the same symptoms (1402. 1403), shows that the remote causes are operating in the same manner on the system, that is, that they are producing the same intermediate causes (12, &c.). Accumulation of blood in the venous cavity is the last link in the chain of causes preceding the excessive discharge and the suppression, and is therefore the proximate cause of both (13).

1405. How this may take place may be gathered



from a passage or two in Cheyne's essays. "I have on dissection found the bile collected in such quantity in the gall bladder, that this accumulation became the cause of the confinement of the bile: for then the natural curve which the cystic duct takes, becomes so acute, and the distended bladder presses so much upon it, that the bile is prevented from flowing, or flows in very small quantity:"<sup>1</sup> and further he says, "The gall bladder was greatly distended, insomuch, that from the acute turn which the cystic duct took, it required such pressure of the gall bladder betwixt the fingers as I feared should have burst it, in order to force the dark bile from the common duct into the duodenum."<sup>2</sup>

Now, if the fulness of a single tube so large could thus prevent the passage of bile through it, it is plain that the same may occur when the vessels are so numerous, so small, and so involved as in the uterus.

1406. This may be further illustrated by what sometimes occurs in the breasts of women. Before parturition, and generally a little after, these glands are soft; in those who have had children, often quite relaxed. A short time after the birth of the child a fulness takes place, and milk is secreted. In young and vigorous women this tension is considerable, and the secretion is proportionally great. It frequently however arises to such a height that the breasts become hard and painful, and the secretion ceases. By reducing the tension, the secretion returns.

Here it is evident that fulness of the vessels produces a discharge; and greater fulness, a suppression of the same discharge.

<sup>1</sup> Cheyne's essay on the bowel complaints of children, p. 48.

<sup>2</sup> Ibid. p. 89.

*Increased and decreased secretions.*

1407. A gland is an organ of the body to which blood is sent for the purpose of having a part secreted, for the purposes of the body, or of its offspring. It is a congeries of vessels, of which one set carries the blood in, and another takes it out; while from the points at which the minute branches of one of these two sets enter into those of the other, springs a third set to bring off the secreted fluid.

Thus, each minute branch of the vessel introducing the blood leads or branches into two, a vein and a duct, which together contain the whole carried in.

1408. Hence it follows, that an increase of the blood flowing through a gland must produce an increase of the fluid secreted, provided there be no obstruction in the ducts.

1409. Also, if there be an obstruction in either vein or duct, the flow through the gland continuing, the quantity passing through that which is not obstructed must be increased.

Thus, if the vein leading off the blood be obstructed, the flow through the duct must be increased; on the contrary, if the duct be obstructed, the flow through the vein must be increased.

1410. As the increase of secretion depends on the flow of the blood through the gland, should that fluid be forced in in such quantity as to distend the vessels and to lessen the flow, or to stop it almost entirely, secretion must be greatly diminished or entirely at an end. It is certain that this accumulation may be so great as to produce hardness of the part, and totally

to suspend its functions ; just as in inflammation when the affected part is distended with blood, the rapidity of its motion through the part is diminished.

1411. That extreme fulness of a convoluted vessel is capable of stopping the passage of a fluid through it, is evident from the case stated above (1405) ; and from what takes place in the breasts of women, in certain cases, it is evident that extreme fulness prevents secretion (1406).

1412. I have seen the same strongly exemplified in the kidneys. A friend of mine had a most violent attack of fever, at a distance from home on the river Potomac ; his constitution was entirely shattered, and he continued an invalid for one or two years. During this time his urine was so abundant that he passed five or six times as much as usual in health. In this state of things he one day complained of a dull pain in the left kidney, which in twenty-four hours had become violent in both sides. He could now make no water at all.

Here the increased flow of blood through the gland, before it arrived at the point of painful distension, caused an increased secretion of urine. At length it arrived at that point, and secretion was at an end. As soon however as the violent distension of these glands was reduced by free evacuation, the urine returned to its usual quantity in health.

1413. It appears then, that a certain quantity of blood flowing through a gland is necessary to secretion ; and to a certain extent, this is in proportion to that ; but when the fulness exceeds a certain point, secretion is at an end.

1414. The fluid secreted by the liver is yellow, bitter, and acrid.

1415. The bitterness of bile or gall is proverbial.

1416. The yellow colour is essential to bile. That which appears black or green, is yellow when diluted or even thinly smeared over any thing. Dr. Mitchell, in his account of the fever in Virginia in 1737 and 1741, states, that in a subject he examined, the contents of the gall bladder were so firm as to retain the form of that sac after it was opened, and so black that it resembled the bruised or mortified blood evacuated from the mortified parts of the liver, and yet it stained a knife or probe of a yellow colour.<sup>1</sup> We every day see more or less of the same. The blackest bile smeared over any thing stains it yellow.

1417. The fluid secreted by the liver colours the contents of the intestines whenever it passes into them. Independent of the general truth that there is no other coloured secretion in the abdomen, this appears from the colour of the chyme being a light grey and continuing so till it meets with the bile, from the contents of the alimentary canal being from that time of the same colour with that secretion, and from their retaining the original grey colour of the chyme until discharged from the body, in cases in which the passage of the bile from the liver to the intestines is obstructed by gall-stones or by tumours. This is further shown in those cases in which the passages are green or black, by the contents of the liver and gall-bladder being found on dissection of a corresponding colour.

1418. Bile is a very acrid fluid. An acquaintance

<sup>1</sup> Rush's Works, Vol. 3, p. 90.

of mine had a strangulated hernia: a portion of the intestine was found mortified, and through the opening thus made into the cavity of the intestines yellow bile sometimes passed out, which produced such smarting that the patient compared it to the effect mustard would have had.

It is a common occurrence for patients to have the rectum made very sore by the bile on its being restored to a healthy state.

1419. It is this which renders bile purgative; and it is this fluid which causes the daily evacuation of the contents of the bowels; as is evident from the fact, that when a gall-stone obstructs the passage of the bile into the duodenum, the patient is generally constipated; and when the obstruction is removed, there often arises a bilious diarrhœa.

1420. It is alleged however, that looseness sometimes occurs during the continuance of the obstruction. This arises from an acrid matter of another kind formed in some of these cases. In dyspepsia a diarrhœa is often the consequence of an acrid matter formed during the process of fermentation in the stomach and bowels, and so abundant as to rise in the throat and produce there a most disagreeable sensation and even vomiting. The same process, manifested by eructations and other like symptoms, sometimes takes place when the bile is obstructed by a gall-stone from passing into the bowels; and when it does, diarrhœa appears with the rest of the dyspeptic symptoms, before the removal of the obstruction. Moreover, the very circumstance of a looseness occurring on the occasional formation of an acrid mat-



ter, confirms the idea that the habitual acrid matter is the cause of the habitual catharsis.

1421. There is another consideration of very great weight. When there is a deficiency of bile and a constipated state of the bowels, the quantity of cathartic medicine necessary to move the bowels is much greater than common; sometimes very extraordinary. No sooner however does the yellow bile appear, than the dose must be diminished, or the purging will be excessive.

1422. Bile therefore is the cause of the habitual discharge from the bowels. It follows, that when that is increased the effects must be greater, and bilious diarrhœa be the consequence. When this takes place the symptoms strongly resemble the action of a violent cathartic. There is a wringing of the small intestines, with griping pain in different parts of their course. Sometimes the discharges are free and little painful; at others they become small and burning, and end in tenesmus; resembling in a pointed manner, according to circumstances, the operation of a brisk cathartic, or of a drastic griping one.

1423. These symptoms are frequently accompanied by nausea and severe vomiting. Sometimes, on vomiting a considerable quantity of bile, entire relief is obtained from the nausea.

1424. Deficiency of bile is generally followed by constipation.

1425. A gradual accumulation of blood in the venous cavity, by retarding the entrance of blood from the branches of the vena portæ, must necessarily produce through the other branches, the biliary ducts, an in-

creased flow (1409). Hence, an increased quantity of bile, and its consequences, griping, purging, nausea, and vomiting (1418 to 1422).

1426. As soon, however, as the fulness becomes so great as to compress and obstruct the biliary ducts, secretion must be diminished or cease (1410 to 1413), and costiveness, and dark or clay coloured passages, according to the degree of obstruction, must be the consequence.

1427. The fluid separated from the general mass in the liver, not only colours the fæces, but constitutes a considerable portion of them, a portion of the excrementitious part of the blood being in this way thrown off. As the more fluid parts are carried off by a thousand outlets, it is obviously necessary to the preservation of the due state of the circulating fluid, that a proportionate quantity of the carbonaceous parts should also be conveyed away. In the form of carbonic acid gas the lungs carry off a portion, but this is necessarily limited by a due regard to the quantity of heat evolved in the process by which this gas is formed. Some other vent is necessary.

The fluid secreted by the liver is chiefly a carbonaceous mass, which the welfare of the system requires to be carried off, and no other gland secretes such a fluid. The liver therefore is that vent.

1428. The conclusion, that the liver is the vent for the superfluous carbonaceous matter, is confirmed by the fact, that this outlet is placed precisely where the excrementitious matter abounds; no part of the blood being so divested of serum as it is in the veins going to form the vena portæ. The immense quantity

of fluid poured out to lubricate the extensive surfaces of the intestinal and peritoneal cavities, and to furnish the necessary fluid for the purposes of digestion, leave the blood laden with carbonaceous matter.

1429. The communication between the branches of the vena portæ, those of the venæ hepaticæ, and the biliary ducts, is so free, that if either of them be injected, the others will be filled. It is manifest, therefore, that these ducts constitute an outlet from those veins, and consequently from the venous cavity into the duodenum; and through them the superfluous carbonaceous matter is discharged (1427).

1430. We have seen that blood accumulated in the venous cavity, pressing on every outlet, is the cause of the effusion of various fluids from the minute arteries in the neighbourhood of its different branches (1359 to 1402). It is reasonable to suppose that the superfluous fluid of the venous cavity would pass through the free outlet of the biliary ducts with greater readiness. This is the case, unless the accumulation be so great as to prevent the passage through the liver. A discharge of bile is a very common occurrence when the accumulation is slight, and multitudes are in every epidemic relieved by spontaneous evacuations from the liver. The discharges are of various colours, yellow, green, or black, sometimes mild, and at others very acrid.

1431. From the free communication of the biliary ducts with the venous cavity, it is evident that these discharges are directly from the latter; and consequently have the effect of topical evacuations, tending directly to lessen the accumulation of blood in the cavity, and its effects.

1432. When the accumulation arises to the height of suppressing the passage through the ducts, if by any means it be reduced to the point at which evacuation takes place, the effect must be the same ; that is artificial evacuations through the bile ducts produce the same effects as the natural.

1433. Habitual accumulation of blood in the venous cavity tends to increase the proportion of carbonaceous matter in the blood. Thus, if three-fourths only of the blood are circulated through the lungs to be decarbonized, the mass of blood, for the whole is mixed, will only receive three-fourths of the benefit of the process in the lungs ; which is equal to the effect of the action of a pair of lungs, defective in that proportion, on a due quantity of blood.

1434. When the lungs are defective, the blood is dark, and gives a corresponding hue to the countenance. In case of great defect, the nails, hands, feet, mouth, and tongue are livid ; therefore fulness of the venous cavity must produce the same effects. Thus, I have seen a livid colour of the nails, feet, hands, and mouth, accompanied by weak pulse, and most of the effects of fulness of the cavity that have been mentioned. In short, the countenance owes its colour to the blood ; when, therefore, that is dark, the complexion must be so too. This darkness shows itself very early and readily under the eyes, just along the lower edge of the orbit.

1435. When the blood abounds with carbon so as to be unusually dark, it is to be expected that the fluid consisting of the superfluous carbonaceous matter, which is daily cast out of the body, will also abound in carbon,

and be darker than usual ; and experience shows, that when the countenance is darker than usual, the blood and the evacuations from the liver, correspond with it in colour.

1436. The connexion between abundance of venous blood, and dark colour of the evacuations from the liver, is shown by what occurs in new-born infants. Their blood is of the dark cast of venous blood, and their discharges are for some days black, and gradually become green, and then yellow.

1437. Accumulation of blood in the venous cavity, therefore, renders the blood, the countenance, and the passages, dark.

1438. When the usual discharge from the liver is obstructed, the urine often becomes very high coloured. Sometimes it is of a deep yellow, and sometimes nearly black ; having precisely the appearance that urine has, after fæces have remained in it for some hours, until the colouring matter is extracted from them. In those cases in which this has occurred, various other effects of accumulation of blood, of a high grade, were also present.

1439. Phenomena discovered to proceed immediately from a certain cause, are signs, thereafter, of the presence of that cause. The pressure of blood accumulated in the venous cavity, producing a flow of variously coloured fluids through the biliary ducts into the duodenum (1430), it follows that such flow is a proof of the existence of such accumulation.

1440. From the able experiments of that great physiologist, Spallanzani, it appears that the process of digestion, as far as it is effected in the stomach, can



be carried on out of the body by means of the gastric juice,<sup>1</sup> care being taken to preserve a proper degree of heat in the mass on which the experiment is made. It appears, also, that no fermentation takes place in substances immersed in the gastric juice, and that this fluid even corrects putrefaction when it has commenced in meat, &c.<sup>2</sup>

1441. When, however, instead of the gastric juice, saliva or water was used to moisten and cover the mass, the experiment in every other respect being conducted precisely in the same way, "the mixtures began, some sooner and others later, to emit air bubbles, which soon increased in frequency and size; the surface of the liquor was covered with froth, which continued as long as any air was generated. During this time the mass swelled greatly, the intestine commotion was manifest, and the substances immersed being made specifically lighter by the air bubbles that adhered to them and the increase of bulk, rose to the surface of the fluid."<sup>3</sup>

1442. The conclusion is, that the gastric juice is the instrument of digestion in the stomach, and that which restrains the disposition to fermentation, natural to the usual articles of diet in the situation in which they are placed, as to heat and moisture, in the stomach.

1443. Another conclusion is, that when every mark of fermentation which took place in the experiment abovementioned (1441) appears in the stomach; it must proceed as in that from want of gastric juice,

<sup>1</sup> Spallanzani's Dissertations, Vol. 1, ccxxxvi.

<sup>2</sup> Ibid. cclvi.

<sup>3</sup> Ibid. ccxxxiv.

and it is in the highest degree probable that the remaining symptom of dyspepsia, want of appetite, proceeds from the same defect.

1444. Appetite for food is in proportion to the capacity of the stomach to digest. In young animals which digest quickly, hunger is keen and even painful. This we see every day exemplified in children. Their digestion is rapid, and the returns of appetite for food are very quick.

1445. "It is scarce necessary to remark, (says Spallanzani,<sup>1</sup>) that the experiments related in the fifty-fifth and following paragraphs, clearly evince this important truth, that the digestion of food is proportional to the quantity of gastric juice acting upon it. When this liquor comes in contact only with a few points, the decomposition is very slow and inconsiderable;<sup>2</sup> when freer access is allowed, the solution takes place more speedily, and is more considerable;<sup>3</sup> it is very rapid, when every obstacle is removed, and the food is on all sides exposed to the action of the solvent liquor."<sup>4</sup>

1446. Hunger being in proportion to the capacity to digest (1444), and this being in proportion to the quantity of gastric juice present in the stomach (1445), hunger itself is in the same proportion. As the proportion which digestion bears to the quantity of gastric juice, arises out of its being the effect of that juice, there is strong ground for believing that the proportion hunger bears to it, also arises out of its being the effect of the gastric juice.

1447. This is confirmed by Spallanzani:<sup>5</sup> observing

<sup>1</sup> Spallanzani's Dissertation, Vol. 1, lxix.      <sup>2</sup> Ibid. lxvii.

<sup>3</sup> Ibid. lxv. lxvi.    <sup>4</sup> Ibid. lxviii. lxix.    <sup>5</sup> Ibid. lxix.

that the appetite of some young crows was much greater than that of the old ones, and that their digestion was quicker, he opened the stomachs of two of them, and found there half a spoonful of gastric juice, a quantity seldom met with in the stomachs of adult crows.

1448. The following from Philip on Indigestion, is also a strong confirmation. A person having fasted for more than twenty hours, and excited his appetite by exercise till he was very hungry, drank freely of warm water, and by irritating the fauces threw up the water "mixed only with a ropy fluid, such as the gastric juice is described to be by Spallanzani." All desire to eat was thereby taken away; but being prevailed on to eat a little milk and bread, it "in a very short time ran into the acetous fermentation, indicated by flatulence and cold acid eructations."

Here taking away the gastric juice removed the appetite, as well as the power of digestion.

1449. In opposition to this, Richerand asks, On this hypothesis, how shall we explain the fact, that when the hour of a meal is over, hunger ceases for a time? <sup>1</sup>

This cannot be admitted without considerable limitation. People do not lose their appetite when meal time is past, except it be moderate, from age or want of vigorous health. The sensation is, however, considerably lessened; especially when the appetite is moderate. Two circumstances contribute to produce this effect.

1450. As soon as hunger begins to pinch, the flow of saliva in great quantity into the stomach dilutes the

<sup>1</sup> Richerand's Physiology, p. 93.

gastric juice and relieves the sensation. “While the masticators are working, the parotid gland pours out so great a quantity of saliva, says M. Helvetius, that it is inconceivable, and what I should not believe had I not seen it in a soldier of the guards. A cut with a sabre in the cheek had opened the salivary duct: the wound healing on the inside of the cheek left a fistulous discharge from the parotid duct. When he eat there flowed from the hole a great abundance of saliva: so that during dinner, which is not long in the Hotel Dieu, it moistened several napkins. How much must flow from all the salivary glands? How much from the pancreas, which is greater than them all collectively?”

1451. This explanation or view is sustained by the fact, that the same relief from hunger is more speedily obtained by a draught of water, which I have made a practice of taking with this view, (when so engaged as not to be able to go to dinner,) without the least desire to drink, but solely from experience of its efficacy in giving relief from the pain. I know others who have been in the habit of doing the same.

1452. The gastric juice thus largely diluted, is carried down into the intestines, and on close attention to what is passing within after the sensation has been endured for some time, a gentle motion downward frequently accompanied by sound, may be perceived. While this dilution is going on, and the mixed fluids are passing out of the stomach, (all of which may be verified by any person of good appetite who will take the trouble to fast a few hours,) the sensation of hunger is every moment lessening.

<sup>1</sup> Bell's Anatomy, Vol. 3, p. 256.

1453. It may be alleged that a few mouthfuls relieve the disagreeable feelings accompanying hunger. These sensations, weakness, head-ach, nausea and heaving, are effects of accumulation of blood in the venous cavity. Eating but a few mouthfuls stimulates the heart to increased action, the blood is drawn from the interior veins, sent to every part of the system, and the most disagreeable symptoms are speedily relieved. At the same time the abundant flow of saliva during mastication (1450), dilutes the gastric juice now mingled with the food taken in, and contributes to relieve. The effect of eating is remarkable in removing the effects of fulness of the venous cavity. A patient of mine often troubled with palpitation, beating of the cava, and feeble intermitting pulse, has often been completely relieved for hours by a good dinner. The passages at the time were almost a black green. In the same way that eating a few mouthfuls relieves the most disagreeable feelings of hunger, a glass of toddy also does it in young men, and I have often had my appetite thus taken away for some time.

1454. With regard to the hypotheses that hunger is caused by the friction of the parietes of the stomach against each other; by the weight of the liver and spleen dragging down the diaphragm, in consequence of the empty stomach not bearing them up; by the lassitude of the contracted muscular fibres of the stomach; by the compression of the nerves; let it suffice that they are every one in direct opposition to the experiments of Spallanzani related above (1447), respecting the young crows in whose stomachs he found a quantity of gastric juice seldom met with in the stomachs of adult crows.



This comparative fulness should have prevented hunger, or at least have made it less in the young than in the old crows, had that sensation depended on either of the above causes.

1455. Appetite and digestion have by some been attributed to what they have called the tone of the stomach; and they have said, that when these are deficient, medicines must be given to increase the tone of the stomach in order to a cure. It is at this time sufficient to object to this doctrine, that men lose their appetite on the approach of fever, when in full strength, and sometimes continue in this state for days; and that after the continuance of a severe fever for some time, they experience, in the lowest state of debility, an extraordinary appetite and rapid digestion. Moreover, the remedies best calculated to bring them from that state in which there is no appetite, to that in which it is very great, are not tonics, but active evacuants.

1456. This absence of appetite in fever affords strong support to the doctrine of its dependance on the presence of the gastric juice. In fever we know that the secretions generally are diminished. We know particularly that those connected with digestion, the saliva and the bile, cease almost universally; and as a free secretion of these fluids accompanies a free secretion of the gastric juice, the presumption is strong that a deficient secretion of the former is accompanied by a deficient secretion of the latter. The deficiency of the gastric juice in fever is moreover evinced by the fermentation of the food, if a person in fever take any. We have therefore, both in the general and

in the particular facts, strong reason to believe that in fever, when there is no appetite, the gastric juice is not secreted. As soon however as the fever goes off, there is a simultaneous return of the appetite and of the gastric juice, shown by the perfect digestion.

1457. Hunger, therefore, we conclude is the effect of the action of the gastric juice on the stomach ; and want of appetite, the necessary consequence of the absence of that fluid.

1458. A certain degree of fulness of the vessels of the stomach being necessary to the due secretion of the gastric juice, and deficient or suppressed secretion arising out of too great fulness (1413) ; it is evident that accumulation of blood in the venous cavity, extending back to the vessels of the stomach, a part of the hepatic branch of that cavity, must in a certain degree produce secretion of the gastric juice, and consequently appetite or hunger ; and in a higher degree must suspend that secretion, and consequently suspend the appetite.

It is equally evident that the advances to this excessive fulness may be so gradual as for a time to produce excessive secretion, and corresponding appetite. Hence the keen appetite sometimes observed for a day or two before the attack of disease.<sup>1</sup> I have seen an epileptic person who had a voracious appetite for twenty-four hours preceding every attack, and thereby always knew when it was coming on.

1459. It may be objected to this doctrine, that the return of appetite is periodical. This periodical return is thus produced.

<sup>1</sup> Whytt on the Nerves, p. 234. Cullen's First Lines, DCCCCXCIX.

After a meal the pulse is raised, the face flushed, the skin warm, all indicative of increased action of the heart. By degrees these effects wear off: the stimulus of the meal exhausted, the pulse declines, the colour and warmth of the surface become less, and if no food be taken, in some hours paleness and weak pulse follow; all indicative of increasing fulness of the venous cavity.

1460. Increased and decreased action occurring alternately, accumulation of blood in the venous cavity, the effect of the latter, returns periodically, and with it secretion of the gastric juice, and appetite.

1461. Thus it appears that the natural tendency to accumulation of blood in the venous cavity is continually operating (1215, &c.); that as this cavity becomes distended, the gastric juice is secreted, and appetite returns; by the gratification of the appetite, the heart is stimulated to increased action, the accumulation in the venous cavity is thereby diminished, and the blood sent to the surface; wherefore the effects of its accumulation in the interior cease. As soon however as the stimulus ceases, the natural tendency to accumulation of blood in the interior again shows itself; and the whole circle of actions is travelled over again. Hence the periodic return of appetite or hunger.

1462. The periodical recurrence of accumulation of blood in the venous cavity, is manifested by the periodical recurrence of many other of its effects besides appetite for food. If abstinence be long protracted, confusion of intellect, pain in the head, back, &c. nausea, vomiting, and various other effects of such accu-

mulation are produced. I know many persons, who by the loss of a single meal, particularly breakfast, are uniformly attacked in a few hours, by severe nausea, and head-ach, and such confusion of intellect, as to be incapable of exertion, bodily or mental, for a day or two; and they sometimes have not recovered from the effects without medical aid. This is particularly the case with those who are suffering under habitual accumulation of blood in the interior veins.

Vigorous persons do not experience these as soon as those of infirm health: in the latter they readily and generally appear; in the former not without longer abstinence from food; whereby the continued decline of the action of the heart, and consequent accumulation of blood in the venous cavity, at length produce them.

1463. Not only does the periodic recurrence of increased fulness of the venous cavity produce secretion of the gastric juice, but all the veins of the chylopoietic glands, the pancreas, the liver, and even the salivary glands, being parts of the venous cavity, these glands are all in like manner affected.

Thus a supply of all the secretions necessary to the process of digestion is secured at the same moment, by the uniformity of the operation of this simple yet efficient cause upon them all.

1464. Hence it is, that when the distension of the venous cavity is such as to suppress the secretion of bile (1413. 1426), or to produce a vitiated secretion from the liver, showing itself by variously coloured discharges (1430), there is either no secretion of gastric juice, or that secretion also is vitiated, insomuch

that there is no appetite. But as soon as the distension is lessened, and the secretion of the liver becomes natural and healthy, the appetite returns; the same degree of fulness which produced a healthy secretion in the liver, producing the same in the stomach.

1465. Hence it is also, that when the secretion of the liver and the stomach is suspended or vitiated, that of the salivary glands is also; and that costiveness (1426) and anorexia (1457) are uniformly accompanied by dry mouth, or furred tongue, the consequences of suppressed or vitiated secretion of the salivary glands.

1466. Blood is sent to the different parts of the body for their support, somewhat in proportion to the bulk of the parts. The glands have a very large additional supply for the purpose of secretion, much greater than is necessary for the purposes common to them with parts not glandular. The vessels carrying blood into the glands are minutely divided and subdivided, until they become so small as not to be able to receive the red globules, the vessels that return the blood corresponding in size. These minute vessels in the interior of a gland are not to be distinguished, much less the minuter vessels which take off the secreted fluid. Nevertheless the continuity of these vessels is manifest, inasmuch as one set carries in the blood, another takes it out, and a third leads off a fluid derived from that in the two first. As the vessels leading off the secreted fluid advance from their minute origins, and unite to form larger and larger vessels, they, like those which lead out the blood, may at length be distinguished. If a ligature be put upon



the duct leading from a gland, the passage of the secreted fluid will be arrested; and none can be emulged, but the small quantity that may be contained in that part of the vessel below the ligature. If the ligature be removed without having injured the duct, the secreted fluid will move on as usual.

1467. Every circumstance here stated of the structure of the glands in general, and of the quantity of blood they are supplied with, is true of the brain.

The brain is supplied with a greater proportion of blood than any other part of the body. Speaking of the arteries of the brain Charles Bell says, "These four arteries alone convey to the head the fifth part of the whole mass of blood. This is the calculation of the older authors; and even those who would settle it at the lowest point, still acknowledge, that the carotids and vertebral arteries receive at least the tenth part of all the blood of the body. The brain then, which weighs not a fortieth part of the whole body, receives one-tenth of all the blood; a proportion which must occasion surprize."<sup>1</sup>

1468. With regard to the conveyance of blood in minute vessels to the different parts of the brain, the pia mater penetrates every part, following all its divisions, and conducting the arteries along the surface of the brain, and into all its cavities; and when the arteries are to enter into the substance of the brain, they have already branched upon the pia mater into the most delicate twigs.<sup>2</sup> By the aid of injections and microscopes, the very minute branches of these vessels are discovered to go from the pia mater into the cor-

<sup>1</sup> Bell's Anatomy, Vol. 2, p. 100.

<sup>2</sup> Ibid. Vol. 3, p. 101.

tical part.<sup>1</sup> “Leeuwenhoeck saw in the substance of the brain, but especially in the cortical substance, red blood vessels, but so delicate that he could not comprehend how the globules of the red blood could pass along them.”<sup>2</sup> He could discern little difference between the medullary and cineritious substance, except that the colour of the latter depended upon the minute ramification of the vessels which were of a dark brown colour; while in the medullary part, they were clearer and more transparent.<sup>3</sup>

1469. No peculiarity of structure is observable in the white medullary substance towards the surface of the brain; but “the continuity of the cortex with the medulla of the encephalon and spinal marrow, is observable with the naked eye, and is more distinctly seen with the assistance of a microscope.

“In dissecting the brain and cerebellum, we see the small beginnings of the medulla proceeding from the cortex, and can trace its gradual increase by the addition of more such white substance coming from the cortex.”<sup>4</sup>

“In several places we can observe the medulla to be composed of fibres laid at each other’s sides.

“The medullary substance is employed in forming the white fibrous cords, which have now the name of nerves appropriated to them. Within the skull we see the nerves to be the medullary substance continued,”<sup>4</sup> &c.

“The nerves are composed of a great many threads lying parallel to each other, or nearly so, at their exit from the medulla.

<sup>1</sup> *Monro’s Works*, p. 317.    <sup>2</sup> *Bell’s Anatomy*, Vol. 2, p. 308, note.

<sup>3</sup> *Bell’s Anatomy*, Vol. 2, p. 309.    <sup>4</sup> *Monro’s Works*, p. 318.

“This fibrous texture is evident at the origin of most of the nerves within the skull ; and, in the cauda equina of the spinal marrow, we can divide them into such small threads, that a very good eye can scarce perceive them ; but these threads, when looked at with a microscope, appear each to be composed of a great number of smaller threads.”<sup>1</sup>

1470. Here it is evident that the vessels carrying in the blood are minutely divided, as in all the glands of the body, until they become so small as to be invisible ; that the vessels bringing out the blood correspond with them in size ; and that from that part of the brain in which those vessels are so minutely subdivided, proceed a number of fibres easily to be traced until they become, like the blood vessels in the same part (1468), invisible to the unassisted eye (1469). The analogy between this arrangement and that of the blood vessels and ducts of the glands, and between those fibres and these ducts, is striking. Are these fibres ducts ? do they carry a fluid ?

1471. The nerves pass to every part of the body which has motion or sensation. If we tie one of them, the part in which it terminates is deprived of the power of motion and of feeling.<sup>2</sup> Remove the ligature, and if the nerve be not injured these powers are restored. This will occur as often as you repeat the experiment, evidently showing that the power of motion and of feeling depends upon the passage of something along the nerve to the part it supplies, that the liga-

<sup>1</sup> Monro's Works, p. 319.

<sup>2</sup> In some instances when a nerve is cut or tied, the part to which it goes is only partially injured. This is owing to its being supplied by more than one nerve. See an instance in Bell's Anatomy, Vol. 2, p. 386.

ture stops it, and that on removing the ligature it flows on again.

1472. This conclusion is so strongly supported by an experiment mentioned by Monro, and repeated by him, as to leave no room for doubt.

“After opening the thorax of a living dog, catch hold of and press one or both the phrenic nerves with the fingers; the diaphragm immediately ceases to contract: cease to compress the nerves, and the muscle acts again. A second time lay hold of the nerve or nerves some way above the diaphragm, its motion stops: keep firm the hold of the nerve, and, with the fingers of the other hand, strip it down from the fingers which make the compression towards the diaphragm, and it again contracts. A repetition of this part of the experiment three or four times, is always attended with the same effects: but it then contracts no more, strip as you will, unless you remove the pressure, to take hold of the nerves above the place first pinched; when the muscle may again be made to contract, by stripping the nerve down towards it. This experiment I have done with the success here mentioned. Let any one try if he can imagine any other reasonable account of these appearances, than that the pressure by the fingers stopped the course of a fluid in the nerve; that so much of this fluid as remained in the nerve, betwixt the fingers and diaphragm, was forced into that muscle by stripping; and when it was all pressed away, the fingers above preventing a supply, the muscle contracted no more till the fingers were removed, and a fresh flow by that means was received from the spinal marrow, or from

that part of the nerve which had not yet been so stripped.”<sup>1</sup>

1473. Were additional support wanting to an argument so conclusive, it might be drawn from the futility of the objections to the doctrine, and from the palpable absurdity of the only doctrine offered instead of it, viz. that the communication with the brain is kept up by means of vibration of the nervous cords.

1474. With regard to the doctrine of vibration, it violates all analogy, there being in the body no such thing as a solid cord except only those which are manifestly used as ropes or pulleys, viz. the tendons; it is impossible for a slack string to vibrate; or for a bundle of strings, incased in a sheath, and kept continually wet and unstrung, to vibrate; or to vibrate in contact with a body in its whole length; or if vibration did take place, for it to be confined to one of the cords incased together; or for vibration to be communicated by impulse on the end of a string, particularly where that termination is, as in the case of all nerves, but especially in the auditory nerve and the retina, a mere pulpy mass.

1475. With respect to objections to the other doctrine, one is, that the nerves are not tubes.<sup>2</sup> This is the merest assertion. There are many instances of vessels existing which we cannot see; how much less ascertain in any other way than by inference that they are hollow. To mention but one: the *arteria centralis retinæ* “can no more be seen in the adult eye than the arteries of an unprepared bone; but by injecting the small arteries of the eye of a foetus, of a

<sup>1</sup> *Monro's Works*, p. 329.

<sup>2</sup> *Ibid.* p. 326,



slunk calf, or of any young animal, the arteria centralis oculi is found to distribute its branches in the following way: As it goes forwards through the centre of the eye-ball, it gives off its delicate arteries from side to side, which go along the partitions of the vitreous humour, (for the vitreous humour is divided every where by membranes into small honey-comb-like cells.) These cross arteries inosculate with those of the retina, and are plainly the arteries which secrete and support the vitreous humour. The central artery stops when it comes to the back of the lens: it is scattered in a radiated form, as if by the resistance, into a great many branches. These branches go round all the capsule of the lens and meet again on its forepart,"<sup>1</sup> &c.

What must be the size of the absorbents attending the arteries which go along the membranous partitions of the vitreous humour? who can say they exist? who can prove they are hollow? Yet from abundant presumptive evidence, arising from analogy with all other parts, there can be no reasonable doubt on the subject; we are satisfied of their existence, we are convinced they carry a fluid.

1476. It is objected, says *Monro*, that we can examine the fluids in the excretories of other glands much smaller than the brain, and cannot examine that in the nerves.<sup>2</sup> Our belief in the existence of a fluid, or even of a set of vessels, cannot rest solely on our being able to examine them. We sometimes infer their existence from the very necessity of their existence (1475).

<sup>1</sup> *Bell's Anatomy*, Vol. 2, p. 117.    <sup>2</sup> *Monro's Works*, p. 326.

There are moreover other instances of the separation of invisible fluids from the blood, the existence of which we are assured of only by the effects they produce. Thus we believe that pounds of an invisible fluid pass every day through the skin, because there is no other way to account for the loss the body sustains over and above what is carried out through the kidneys, liver, &c. and because by applying near to the skin a cold metallic or glass surface, we see it obscured by the condensed vapour.<sup>2</sup> So we are convinced that every breath we draw, a portion of carbon escapes from the body through the lungs; because by passing the air from the lungs through lime-water the carbonate of lime is precipitated: yet of this the world was long ignorant, and but for this effect, they might still not imagine such a thing.

Without this proof the passage of the carbonic acid from the lungs might be denied: without the proof by condensing the perspirable matter, the existence of that fluid might be denied. Here are two effects, from which we deduce the existence of two invisible fluids, and the fact of their separation from the blood; the fluids and the mode of proof equally differing; and the conviction is perfect. It is evident therefore, that we may with propriety judge of the existence of the fluid in question by its effects, and may in this way arrive at conviction as certainly as in any other.

1477. It has likewise been objected, that "other glands have their excretories collected into a few large pipes, and not continued in such a great number of separate pipes as far as the places where the liquors are deposited."<sup>1</sup> The answer is, that the fluid secre-

<sup>1</sup> *Monro's Works*, p. 326. <sup>2</sup> *Richerand's Physiology*, p. 259.

ted by other glands is wanted in mass, and therefore the ducts unite and form one or more large ones which conduct it to the spot where it is wanted. But in this case the fluid is wanted in every part; and bringing it to one point would defeat the very object in view. In order to convey to every part the power to feel or to act, or to do both (1471), these ducts must necessarily be kept separate.

1478. It has also been objected that the diaphragm is set in motion by stripping the nerve from as well as towards the muscle.<sup>1</sup> It is evident, as Monro argues, that a fluid in small pipes, hindered from flowing backwards by compression, or even by the current of the fluid itself, will, when pressed backwards, regurgitate. This may be observed in a vein of the arm, when by a ligature the blood is arrested in its progress to the heart: strip the vein along towards the hand, and immediately on withdrawing the pressure, the blood rushes forwards with increased impetus: the same occurs even without a ligature, on stripping the veins towards the hand.

Moreover, in stripping the nerve *from* the diaphragm, that part of the nerve between it and the thumb and finger, is unavoidably stretched: this stretching draws the sides of the tubes together, narrowing the space between them, and causing the sides of the tubes to contract upon the fluid, and send it on to the diaphragm. This stretching takes place in some degree on barely taking up the phrenic nerve, as I have observed, and produces motion in the diaphragm.

<sup>1</sup> Monro's Works, p. 330.

This taken in connexion with the fact, that after stripping a few times no effect is produced without removing the obstruction; and that after the removal the effect is produced again (1472), shows that it is not caused by the mere stripping, but that the stripping passes into the muscle something which is supplied from above the compressed part.

1479. It may be observed in passing, that that which flows through the nerves to the muscles, exciting them to action, is a fluid capable of being restrained within certain bounds, viz. within the compass of the nerves, and even within any part of a nerve by a ligature (1472); and therefore cannot be any fluid capable of traversing the body in every direction, as electricity, or the galvanic fluid.

1480. The same structure that is observed in the brain, occurs also in the spinal marrow: it has its cineritious and its medullary substance, and is, as anatomical writers have called it,<sup>1</sup> an elongation of the brain. It has a similar abundant supply of blood. It has arteries of its own, and receives blood from the vertebral arteries ascending to the brain, and "from every artery that passes near the spine."<sup>2</sup>

1481. The nerves originate in the brain and spinal marrow, being mere continuations of their medullary substance: they therefore derive their fluid from the brain and spinal marrow.

1482. In the experiment on the phrenic nerve of a dog (1472), while communication with the brain was cut off, the mere passing of the nervous fluid with the thumb and finger into the muscle, excited it to ac-

<sup>1</sup> Bell's Anatomy, Vol. 2, p. 356.

<sup>2</sup> Ibid. p. 114.



tion ; and when that fluid was all pressed out of the nerve between the compressed part and the diaphragm, the action of the latter could no longer be excited. Therefore the mere passing of the nervous fluid into a muscle, independently of the determination of the will, compels it to act ; and there is no action without its passing in.

1483. When therefore the action of those muscles, which, in common, act only when the will determines it, is *involuntary*, the nervous fluid must be passing into them without the will being able to restrain it ; which can only proceed from an increased flow of that fluid from the brain, showing increased secretion.

1484. Convulsion therefore, or involuntary contraction of the muscles usually under the control of the will, is caused by an increased secretion of the nervous fluid pouring into the muscles affected, without the direction of the will.

1485. Increased secretion being the effect of unusual fulness of the vessels of a gland (1413), unusual fulness of the vessels of the brain produces an increased secretion of the nervous fluid ; and this, when produced in such quantity as to pass without the direction of the will, being the cause of convulsion (1484), unusual fulness of the vessels of the brain is the cause of convulsion, one link of the chain more remote (12, &c.).

1486. This is confirmed by the observation that the obstruction of the return of the blood from the brain by tumours, &c. causes convulsions. Dissections also show that the vessels of the brain of persons who have died in convulsions, are turgid with blood. Morgagni states a number of cases in which this was ob-



served. Speaking of one of them he says, "The head; which was the only part dissected, had nothing at all in it worthy of attention, if you except *the turgency of the vessels of the cerebrum.*"<sup>1</sup>

1487. It is evident that unusual fulness of the vessels of the brain will produce the effect, increased secretion, whether that fulness be produced by a tumour, &c. restraining the free return of the blood from the brain, or by accumulation of blood in the whole venous cavity (1361). Such accumulation in the venous cavity therefore produces increased secretion of the nervous fluid, and convulsion.

1488. This is confirmed by the fact, that other effects of accumulation of blood in the venous cavity accompany convulsions. Motherby, and Parr after him, mention as diagnostic signs, and therefore accompanying symptoms of this affection, languid pulse, pale countenance, pain in the head, stupor and drowsiness, palpitation of the heart, fulness of the præcordia, and disturbed respiration. The two first of these symptoms indicate accumulation of blood in the venous cavity (1219), and all the rest are its effects (1318. 1322. 1281, &c. 1265. 1296.). The following symptoms have also occurred in company with convulsions in my practice, viz. want of appetite, fermentation of the contents of the stomach,<sup>2</sup> constipation, white, green,

<sup>1</sup>Morgagni, of the Seats and Causes of Diseases, Letter ix, art. 14. See also art. 12.

<sup>2</sup>As fermentation in the stomach is the consequence of deficient secretion of the gastric juice (1443), as well as want of appetite (1457); and as deficient secretion is the effect of a certain degree of accumulation of blood in the venous cavity (1458), the latter is the cause of fermentation in the stomach, as well as of want of appetite (1458). This inference should have been drawn before, and have followed the words ending the first section of the passage 1458.

or dark passages, diarrhœa, &c. all of which are likewise effects of accumulation of blood in the venous cavity (1458. 1426. 1425).

1489. It may be objected that convulsions, after being for a short time very violent, generally remit, and return again and again; and that if accumulation of blood in the venous cavity produced them, they should be continued.

1490. Convulsions by propelling the blood from the whole venous system, except the veins of the head, towards the heart, excite the latter to great increase of action, whence strong pulse, &c. This may be in part owing to an increased flow of the nervous fluid to the heart, making it more sensible to the stimulus of the blood; but it is evident that so rapid a current of blood, the natural stimulus of that organ (81), must excite it to increased action, independently of such aid.

1491. It is evident that this increased action, which sends the blood into the arteries with great force, and distends them more than they are in any other circumstances distended, must withdraw from the venous cavity a great quantity of blood; and, as accumulation of blood in that cavity is the cause of the convulsion (1487), the latter must decline as the former is diminished, and at length must cease.

1492. It is equally evident that when the convulsions cease, the current of blood to the heart is greatly diminished; the increased action of that organ declines, partly from lessened stimulus, and partly because increased action is inevitably after a short time followed by decreased (90. 96); the blood accumulates

in the venous cavity in proportion to the decline (1218); the secretion of the nervous fluid again increases; and the convulsions return (1487).

1493. The whole of this process may at any time be verified. I have remained by the side of a patient in convulsions for some time, and observed that they came on when the pulse was weak, that in a short time the pulse rose very high, that in this high state of the pulse the convulsions ceased, and when they returned again the pulse was found to have fallen down to a weak state. It is evident, inasmuch as accumulation of blood in the venous cavity is the immediate consequence of weakened action of the heart, that the convulsions in this case occurred when the accumulation was present, that the violent efforts drove the blood on to the heart, which was thereby excited to action and to withdraw the accumulated blood from the cava, when the convulsions ceased, and returned with the returning accumulation.

1494. This alternation of convulsion and quiescence continues until the patient at length falls into a stupor;<sup>1</sup> being brought by excessive exertion into this state, that his muscles can no longer be excited to action by the nervous fluid, nor his heart by the blood: wherefore lying quiet after the last struggle he can be excited to make, the blood continually accumulates in the venous cavity, and the vessels of the brain become so full, that secretion of the nervous fluid is greatly diminished, or entirely suppressed; the same effect being produced in the brain, as in all other glands by excessive fulness of their vessels (1413. 1426. 1458).

<sup>1</sup> Cullen's First Lines, MCCLXXXII. MCCLXXXIII.

1495. The suppression of the secretion of the nervous fluid by excessive fulness of the vessels of the brain, suddenly produced, sometimes causes a person to fall into a comatose state without previous convulsion. But some convulsion, often momentary, occurs in almost every case, on the instant of a patient's falling into a comatose state.

1496. This view of the subject, viz. that convulsion is the effect of a minor degree of fulness of the venous cavity, and a comatose state of a greater, is confirmed by the occurrence of convulsion on bleeding a man in a comatose state. I have seen a man, lying in the highest degree of coma, become convulsed on bleeding him. Dr. McCabe of Leesburg informed me that he had several times attended a physician, who frequently fell into a comatose state approaching to apoplexy. He always bled him, and it repeatedly happened that while the blood was running convulsions came on. The bleeding however was continued, and decided relief was uniformly the consequence.

1497. The same is very strongly confirmed by a passage in Cullen. Speaking of apoplexy he says, "Although the whole body is affected with the loss of sense and motion, it sometimes takes place more upon one side than the other; and, in that case, *the side least affected with palsy* is sometimes affected with *convulsions*."<sup>1</sup>

1498. Cramps are involuntary contractions of the muscles, and are therefore convulsions. So also are tremors, and subsultus tendinum. Those who are habitually liable to tremors, are liable also to cramp.

<sup>1</sup> Cullen's First Lines, &c. MXCIX.



Those who are affected with convulsions, are at intervals affected with tremor, both in the intervals of the attacks of convulsion, and in those of the convulsions on any particular attack. Involuntary stretching is a convulsive motion of the muscles in action. This also occurs in convulsion, and precedes the violent contraction of the muscles. Sometimes all appear in the same case ; the patient has a slight tremor, at length begins to stretch, very much in the manner of a person awaking out of sleep, and is finally strongly convulsed.

1499. When exposed to a considerable degree of cold, at the very instant of the sensation we call a chill, we perceive, on close attention, an involuntary action of the muscles of the trunk. This is not only involuntary, but any effort we make to prevent it, to hold the body still, is vain. It is immediately followed by relaxation ; the duration of which is at first considerable. Gradually however the contractions become stronger, and are more frequently repeated, until at length the affection becomes most violent and distressing, shaking the whole frame in such a manner as sometimes to alarm all around. This affection, which we call by different names, according to the degree, a chill or an ague, is therefore an involuntary contraction of the muscles ; that is, a convulsion.

1500. This identity is supported by a variety of considerations.

Convulsions are often preceded by a creeping sensation in different parts distinctly perceived by the patient until his mind is overpowered. It is often compared to the creeping of an insect on the part. The



same occurs on the approach of an ague ; and the same words are used to describe the sensation in both cases.

In both convulsions and ague, a feeble pulse and pale countenance precede the involuntary motions ; but during the violent exertions, the pulse generally becomes stronger, and the countenance flushed.

In convulsions the symptoms preceding every repetition of the convulsive motion, viz. tremor and stretching, are often precisely the same with those which precede an ague.

The convulsive motions in ague are often so violent as to prevent ready utterance, and they are sometimes attended with loss of sense and even death. A man in an ague is often so violently shaken, that if he could get the better of his alarm, sufficiently to feign insensibility, his affection would readily pass for a convulsion. On visiting a patient who, I was informed, had very violent agues, I found him so excessively agitated and with such a look of stupor, that I could not believe that he was sensible, until I had asked him the question. If in this situation a man become really insensible, it is said the chill ended in convulsion, whereas he was evidently convulsed throughout ; and it is only from the presence of a higher degree of the cause, accumulation of blood in the venous cavity, that the sole additional symptom, insensibility, has appeared.

Convulsions sometimes go off with an ague, and an ague frequently ends in convulsions.

A young woman subject to convulsions, sometimes a patient of mine, is suddenly attacked, and after having been convulsed for a considerable time, recovers her senses ; but is still involuntarily agitated, with a sense of coldness, so that she calls for more bed clothes.

Another young woman subject to convulsions, feels fatigued for a day or two before the attack, and at length has an ague which gradually increases in violence, during which she is sensible and answers when spoken to: the involuntary motions continuing to increase, she at length becomes insensible, and foams at the mouth. Her relations have on some occasions left her for a short time in such an ague, able to converse, and well covered up in bed; and returning, have found her still in violent agitation, insensible, and foaming at the mouth.

On the other hand, I had a patient a few years ago, who was subject to frequent convulsions, during which he was generally insensible to all that passed; but on one occasion, on recovering, mentioned his having heard something his mother said of him, and stated what it was.

Dr. Cartwright, in his account of the epidemic of 1822 in Monroe county, Mississippi, mentions a number of cases, in which the usual chill with which the fever commenced, was "succeeded by no perceptible alteration of the pulse, and by not the least febrile heat in any external part; but instead of fever, violent spasms and convulsions, especially of the muscles of the arms and legs. While these continued the breathing was difficult, the eyes intolerant of light, and the mental faculties disordered."<sup>1</sup>

It is evident that in these cases, the heart not being excited to action, the accumulation in the cava, &c. continued, and the effects usually observed in chill, increased to the more violent degree of involuntary motion which has acquired the name of convulsion.

<sup>1</sup> Medical Recorder, No. 28, p. 668.

1501. An ague therefore, being a convulsive motion of the muscles differing in no respect from a convulsion (1499), is the effect of the same cause, accumulation of blood in the venous cavity (1487). The accompanying paleness, coldness, and feeble pulse, indicate the existence of this accumulation in a high degree (1219). Various symptoms likewise, present in an ague, are effects of the same accumulation, viz. pain in the head, back, and hypochondria, hurried respiration, anorexia, and sometimes ravenous appetite, nausea, vomiting, confusion of intellect, drowsiness, stupor, coma (1318. 1333, &c. 1296, &c. 1458. 1423. 1320. 1322).

1502. It is obvious that the agitations of the body in an ague, drive the blood from the muscular parts of the body into the interior (1222); and that they moreover compress the venous cavity and drive on the blood from every part of it, but the head, towards the heart.

1503. When by the operation of any cause, there is an accumulation of blood in the venous cavity, it must have different effects according to the rapidity with which it takes place (1261). If very slowly and almost imperceptibly, the heart is not roused to action, the veins are gradually distended, and a variety of effects are produced (1265, &c.).

1504. But when the accumulation is so rapid that the veins cannot yield fast enough, as when produced by cold, &c.; or if it amount to that degree which produces a convulsive agitation of the body (1487. 1499), whereby the venous cavity is compressed; the blood is urged vehemently on to the heart, and that organ, excited by an increased quantity of its natural stimulus

to increased action, fills the arteries, distends their remotest branches, expands the features, and communicates to the external parts increased heat and colour.

The vessels of the skin are so distended that a throbbing of the small arteries is felt in every part to the very finger ends. By this means the minute exhalent vessels of the skin are overpowered in the same way as the vessels of the glands are (1413). When the action of the heart abates, the distension of the cutaneous vessels is lessened, free entrance is allowed into the capillary vessels of the skin, and there is a free discharge through them, and the skin is covered with moisture, at the same time and in the same way that moisture returns in the mouth; the urine from being scanty and high coloured, becomes abundant and of the usual colour; and sometimes there is an abundant secretion from the internal surface of the intestines occasioning a free discharge at the close of the paroxysm.

1505. Analogous to this is what occurs on violent exercise, or long exposure to great heat. The mouth becomes dry, and with the other parts of the body, throbs, (especially observable on being held a little open,) and is so parched as to make it pleasant to draw the air through it. The desire for water is excessive, but on reaching the house, before it is brought, the inclination for it is frequently gone, the action having subsided, the throbbing ceased, and the mouth become moist.

1506. The action of the heart does not however always fall to that point at which these phenomena are observed; the skin often continues dry, the mouth dry



and furred, the urine continues high coloured and scanty, and the bowels continue costive. This is more particularly the case, when fulness of the venous cavity is very considerable, and has continued for some time previous to the increase of the action of the heart.

1507. The increased action of the heart (1504) continues until that muscle, like all others, after long and violent action, is less disposed to it, and gradually relaxes its efforts. The venous cavity likewise, being by this process emptied of its excess of blood, pours less and less into the heart. The heart being less excitable, and the stimulus failing, its action becomes more and more feeble, which leads directly to renewed fulness of the venous cavity (1214, &c.), and to all its consequences.

1508. This fulness continually increasing, and the heart during its feeble action acquiring from rest, like every other muscle, renewed power to act; both at length arrive at that point in which renewed vigour and abundant stimulus meet, and produce a repetition of the increased action of the heart; which continues till relaxation again comes on, and gives rise to renewed accumulation of blood in the venous cavity, and renewed action.

1509. Thus it appears that the train of symptoms, weakness of the pulse, diminution of the bulk of the external parts of the body, shrinking of the features and of the skin, paleness and coldness of the surface, arise from the heart's failing to send blood to the surface (1210); and from its consequent accumulation in the venous cavity (1218), arise fulness and tenderness



of the epigastrium, and hypochondria, and stitches in the sides (1332, &c.), pains in the head and comatose affections (1318 to 1322), general debility (1356), oppressed and hurried respiration (1296), bilious vomiting and purging (1425), anorexia (1458), chill (1501), and increased action of the heart; which produces increased colour, temperature and bulk of the external parts, and perspiration (1504).

These symptoms, with others arising from the same cause (1265 to 1504), constitute the *paroxysm*, viz. the cold and the hot stages of a fever.

1510. The decline of the action of the heart, after increased action has continued for some time (1507, &c.), is more or less perfect. When slight it is called a remission; when more perfect, an intermission. The increased action of the heart in fever has however too exclusively attracted the attention of physicians (48). They have paid too little attention to the other symptoms. During the intermission the patient complains more or less of want of appetite, head-ach, tenderness and fulness of the epigastrium, debility, costiveness; his pulse is feeble, and his countenance sallow. A very intelligent patient, stating his case very particularly, told me he knew when the chill was approaching by the increase of the pain in the back, which never left him entirely in the intermission; when it began to be worse, pain in the head commenced, and about the same time, thirst, and a little nausea, particularly if he drank any thing. This is common; the chill is merely the acme of the process which has been going on ever since the subsiding of the increased action of the heart (1507 to 1509).

1511. On the duration of the whole period, including the time of the increased action and of the remission, is founded the division of fevers into the quotidian, with a paroxysm (1509) in every twenty-four hours; the tertian, with a paroxysm in every forty-eight hours; and the quartan, with a paroxysm in every seventy-two hours.

On the degree of the remission is founded the division of fevers into intermittents and remittents (646).

1512. These distinctions are however arbitrary, and there is no such uniformity as their names indicate. We sometimes find the fever called quotidian returning two or more hours sooner every day. The period in these cases is evidently one of twenty-two hours, or less, instead of twenty-four.

In other cases the hot fit returns two or more hours later every day. This is evidently a period of twenty-six hours or more.

So likewise with tertians: they return sometimes two or four hours earlier or later every day. These periods are not indicated by the name, tertian: they are periods of forty-six, or forty-four hours; or of fifty or fifty-two, instead of forty-eight.

It is the same with the quartans. These occurrences are so frequent, that they have given rise to distinct appellations, viz. anticipating and postponing tertians, &c.

1513. The variations from the regular periods, indicated by the names, tertian, &c. are exceedingly numerous.

There is what is called the true tertian with one paroxysm of twelve hours in every forty-eight; but

there are many other fevers called tertians. There is one with a paroxysm extending from twelve to eighteen hours in every forty-eight; and others with two paroxysms and two intervals within the time of each period (1511), which have been called double tertians.<sup>1</sup> Some of these have one paroxysm of twelve hours followed by an interval of six, and a second paroxysm of six hours followed by an interval of twenty-four:<sup>1</sup> others have a paroxysm in every twenty-four hours, the severe one commencing at noon of the odd days, (the proper time for the paroxysm of a tertian,) and the slight one on the evening of the intervening day.<sup>2</sup> The paroxysms of some double tertians do not exceed twelve hours; those of others continue longer; and some are so long protracted, that one is scarce ended when another begins.<sup>2</sup> Sometimes in one period (1511) there are three paroxysms and three intervals; the first paroxysm continues about six hours, and is followed by a *few hours* interval; another paroxysm then begins, and continues for some hours, (this paroxysm and the preceding interval embracing about twelve hours,) and is followed by an interval of twelve hours; a third paroxysm then comes on and lasts eight or ten hours, and is followed by an interval of some hours, this paroxysm and interval together embracing a period of about eighteen hours. Cleghorn calls it the triple tertian.<sup>3</sup>

There is another fever, in which the first paroxysm and the following interval embrace a period of more than twenty-four hours; and the second, and every

<sup>1</sup> Cleghorn's Observations on the Diseases of Minorca, p. 140.

<sup>2</sup> Ibid. p. 141.

<sup>3</sup> Ibid. p. 142.

subsequent paroxysm, continues thirty-six hours; leaving only twelve hours of interval: this Cleghorn calls a semi-tertian.<sup>1</sup>

After a laboured attempt to class these fevers, Cleghorn admits that they differ among themselves according as the intervals are more or less disturbed:<sup>2</sup> and he says "it often happens that you can neither distinguish paroxysms nor intervals,"<sup>3</sup> &c.

1514. Thus it is evident that fevers vary infinitely in the violence and duration of the paroxysm and the interval of rest; and Cleghorn had reason to say that he almost despaired of being able to give any tolerable idea of them,<sup>4</sup> although he should endeavour to describe their various appearances "with as much exactness as their own irregular anomalous disposition would permit."<sup>5</sup>

1515. There is indeed every variety of grade, and of duration of the increased action of the heart, that could be supposed to arise from the varying state of the excitability of that organ in different persons, or in the same person at different times. That this is the real foundation of these varieties, is evident from the following considerations.

1516. After a few paroxysms, the increased action gradually becomes less and less violent on every repetition; continues a shorter time so that the interval becomes longer; and at length the period, instead of forty-eight hours, embraces seventy-two hours. Thus, the time of the return of the paroxysm in a tertian is on every odd day, until the eleventh day; when it

<sup>1</sup> Cleghorn's *Observations on the Diseases of Minorca*, p. 143.

<sup>2</sup> *Ibid.* p. 143. <sup>3</sup> *Ibid.* p. 147. <sup>4</sup> *Ibid.* p. 136. <sup>5</sup> *Ibid.* p. 138.



changes to the fourteenth, seventeenth, and twentieth, becoming in reality a quartan fever. After the twentieth day it is so inconsiderable as not to be regarded; but there is generally some slight fever between it and the thirtieth day.

Here the same indisposition to increased action, in consequence of which the paroxysms are less and less violent, occasions longer delay in the renewal of the increased action, and the intervals become longer.

1517. On the contrary, when tertians and quartans become quotidians, and quotidians remittents, the fever has its paroxysms protracted longer than usual before it changes its type.<sup>1</sup>

Here the increasing excitability of the heart which protracts the febrile action, occasions an earlier renewal of it.

1518. "With respect to the form, or type of fevers, this further may be observed, that the quartan, while it has the longest interval, has, at the same time, the longest and most violent cold stage; but, upon the whole, the shortest paroxysm. That the tertian, having a shorter interval than the quartan, has, at the same time, a shorter and less violent cold stage, but a longer paroxysm. And, lastly, that the quotidian, with the shortest interval, has the least of a cold stage, but the longest paroxysm."<sup>2</sup>

In this case the same principle holds good. The same excitability that causes violent action of the heart, produces a repetition of the increased action at a short interval, as in the quotidian: and in the tertian and quartan, the violence of the action is proportioned to the readiness to commence it.

<sup>1</sup> Cullen's First Lines, xxxi.

<sup>2</sup> Ibid. xxx.



1519. So also in the different forms of the double tertian, the longest interval precedes the slightest fever; and the shortest interval, the most violent.

“Some double tertians begin in this manner: on the evening of Monday, for example, a slight fit comes on and goes off early next morning: but on Tuesday towards the middle of the day, a more severe paroxysm begins and continues till night. Then there is an interval to Wednesday evening, when a slight fit commences a new period of the fever which proceeds in the same manner as the first,”<sup>1</sup> &c.

Here the short interval on the morning of the even day precedes the severe paroxysm; and the long interval, from the night of the even day to the evening of the odd day, precedes the slight fit.

“But in most double tertians, the patient has a fit every day of the disease; the severe one commonly appearing at noon on the odd days; the slight one towards evening on the even days; though sometimes the worst of the two fits happens on the even days.”<sup>2</sup> Here the longer the fit is postponed the slighter it is.

“In double tertians that interval is the most considerable which follows the severe fit: for the slight fit oftener ends in a remission than intermission,”<sup>2</sup> &c. Here the same holds good, the long interval precedes the slight fit, the short one, the severe fit.

1520. This plainly arises from the violent action of the heart in the severe fit exhausting it (1507), so that it is longer renewing its action; while after the moderate action of the light fit, it soon becomes capable of renewed exertion (1508).

<sup>1</sup> Cleghorn's Observations on the Diseases of Minorca, p. 140.

<sup>2</sup> Ibid. p. 141.

1521. For the same reason, fevers of excessive violence, insomuch as to destroy the patient in two or three paroxysms, have almost no remission ; there is a bare relaxation of the violent action of the heart for a few moments, when its extreme excitability hurries it into a renewal of its preternatural efforts.

So in those cases on the contrary, in which the fever is so slight as barely to raise the pulse a little, to make the palms of the hands hot, and excite a slight pain in the head every evening, all so slight as scarcely to be noticed by the patient, the exacerbation is almost as short as the remission in the other case.

1522. The difference between remittent and intermittent fevers, arises out of the same difference of excitability of the heart. In intermittent fevers the blood is allowed to accumulate in the venous cavity in such quantity as to produce chill or convulsion ; whereby it is impelled into the heart in such quantity as to rouse it to excessive action. It not being possible for this to last, in a few hours it sinks gradually down to weak action, and the blood again accumulates in the venous cavity. In proportion to the violence of the action is the length of time before the heart is roused again ; and in very violent cases, after a few excessive paroxysms, the heart, with a profusion of blood pressing for admission, is insensible to its presence, and the patient dies in the cold stage.

In remittents there is greater excitability of the heart. The blood is not allowed to accumulate in such quantity as to produce a chill ; but sensible to its stimulus the heart easily renews its action. The blood not being violently driven into the ventricle, the action

is less rapid, the heart can bear it longer, is not so exhausted, sinks not so low, and begins to act sooner again.

1523. The difference of fevers, with regard to what are called malignant symptoms, grows out of the difference of the action of the remote causes. Those which act slowly and produce gradual accumulation of blood in the venous cavity, are attended by those symptoms which are effects of such gradual accumulation; while those which act rapidly, produce sudden accumulation, and immediate increased action (1262), without those effects.

1524. Thus, when a fever is produced by miasmata, this remote cause, being gradual in its operation, renders the blood black, gradually lessens the pulse, loads the venous cavity, produces fulness and tenderness of the epigastrium, deranges the secretion of the liver and stomach, produces sometimes hemorrhage, and sometimes coma, even before increased action comes on; and the blood being dark and therefore less stimulant than usual, when the increased action does commence, it is comparatively moderate, unless some remote cause which produces sudden accumulation, lends its aid.

1525. But when a fever is produced by cold, this remote cause very rapidly reducing the action of the heart (99, &c.), the accumulation of blood in the venous cavity is very rapid, the quantity of stimulus suddenly presented to the heart is greatly increased, and the action of that organ must correspond; wherefore increased action or fever takes place, and the effects of gradual accumulation in the venous cavity cannot

appear (1262 to 1264). Fevers thus produced are therefore very violent, but without stupor, hemorrhages, convulsive motions, &c. except when the remote causes which produce these sudden effects, act subsequently to those which produce gradual accumulation and its effects. In this case the malignant symptoms are combined with the violent, as in fever brought on by the exposure of persons who are under the influence of miasmata, to the operation of cold.

1526. We have seen that in the remission of a fever, the effects of accumulation of blood in the venous cavity continue (1510). In fevers produced by remote causes acting slowly, and therefore accompanied by various effects of accumulation of blood in the venous cavity (1523), many of these effects appear before the increased action; during the increased action they are somewhat moderated; but when it declines they appear again. When by repeated paroxysms, the disposition or ability of the heart to rise into increased action is worn out, some of these effects generally continue. As they appear in every remission, or after every decline of the increased action, they continue after the last, constituting various chronic diseases.

1527. Thus, a person may have pain in the head; sallow skin; dark passages; tenderness of the epigastrium; loss of appetite; if he persist in eating, cruciations, sourness of stomach, belchings or vomiting, and pain in the stomach: at length fever appears, perhaps preceded by chill; it runs its course in some days, and ceasing leaves the patient with the same train of effects, above enumerated, and often others more serious. This is on the supposition that little or nothing is done to remove the disease.

1528. But it often happens that what is done is either ill advised, or, if proper, not sufficiently persevered in.

It has been said (48. 1510) that the increased action of the heart has attracted, too exclusively, the attention of physicians. If violent, it undoubtedly demands attention in the first place ; but after it is subdued, the other symptoms should not be overlooked. If the remedies employed be merely calculated to reduce the fever without evacuating from the venous cavity ; or if even they be calculated to effect this, but are withheld as soon as febrile action is subdued, while yet there remain marks of fulness of that cavity ; the inevitable consequence is the discovery, after a few days, that the patient is not as well as he was. The physician is recalled, and finds him without appetite, with sallow complexion, slight head-ach, occasionally a dark passage, especially if he have taken a dose of calomel ; he suspects the liver, touches the epigastrium, finds it tender, and pronounces it a liver complaint.

1529. In truth there is nothing present but what existed before the fever occurred ; and the error lay in mistaking one symptom for the whole disease, in carrying off only that more prominent one, and in leaving the more important to seat themselves firmly in the system.

According to the length of time the disease is left to progress unrestrained, is its extent. It shows itself under various shapes ; all, combinations of the preceding effects ; sometimes one and sometimes another being more prominent than the rest. Sometimes one



effect more prominent than the rest gives the case a name; but physicians, from circumstances, from the course their practice has taken among males or females, rich or poor, differ in the degree of importance they attach to symptoms. Hence different names are given to the same disease by different physicians, and even by the same at different times, some other symptom having become prominent in the interval.

Often, however, no one is very prominent, or the physician overlooks it, and the poor patient is generally condemned to ridicule as hysterical; and hopeless of relief, or even of solace in suffering, worries through her life, sometimes gasping for breath, sometimes racked with pains in different parts, which, because they are unattended by febrile pulse, are called imaginary; and when the melancholy consciousness of sufferings nobody will listen to, fastens upon her, and drinks up her spirits, it is only considered by the thoughtless throng, as another symptom of that Protean disease which has ever eluded the research of physicians.

1530. In these cases; from occasional increased exposure to the causes of accumulation of blood in the venous cavity, there sometimes arises febrile action, continuing a longer or shorter time according to circumstances. It often is no more than a heat in the palms of the hands, and a slight increase of the colour in the cheek, especially of fair people, and is in such cases often mistaken for phthisis. Sometimes it becomes considerable, and if the case be well conducted, it may terminate without subsiding into the state above described (1526 to 1529).

1531. Although the more general termination of neglected or ill-treated fevers is as above described (1526 to 1530), a single symptom or effect occasionally so predominates as to engross the attention of the physician, to the exclusion of the rest. Thus, after the decline of a fever, neglected or ill-treated, we meet with effusions into different cavities, menorrhagia and other hemorrhages, disordered stomach, pain in the back, head, &c. or convulsions. These prominent affections give name to the disease, and other effects of the same cause are overlooked: they are however not absent. On the contrary, as these affections are often of long standing, and of high grade, they are always accompanied by a number of other effects of the same cause, accumulation of blood in the venous cavity. This will fully appear in the sequel.

1532. This prominence of one symptom or effect over the rest, evinces that that part of the venous cavity with which it is particularly connected, is in that case more liable than the other parts to yield to the distending force; which may arise from hereditary peculiarity of structure of that part, or from the particular operation of the remote cause which produced the disease, on that part. This also in the sequel will more fully appear.

1533. Febrile action is not the only morbid affection that intermits or remits. Pain, convulsions, coma, &c. have sometimes regular periodic returns every twenty-four or forty-eight hours, unaccompanied by febrile action. Senac says he has seen "a periodical cold fit, which was not succeeded by any appearance of febrile heat."<sup>1</sup> I have myself frequently had cases

<sup>1</sup> Caldwell's translation of Senac on Fevers, p. 41.

in which the patient averred that he had had a chill, but no fever after it.

1534. It is evident however, that there is nevertheless some fall of the pulse at the time of the cold fit, and therefore some elevation from which to fall, and consequently an alternate increase and decrease of the action of the heart: the difference between these cases and those in which fever follows the cold fit, is only this; that in the former, the increased action rises no higher than to the ordinary grade of action in health, and then declines again until the cold fit appears. Thus is the cold fit periodic without any appearance of *febrile heat* (1533).

1535. In the same way, pains, convulsions, coma, &c. which are effects of a certain degree of accumulation of blood in the venous cavity, appear when the action of the heart sinks to that degree which produces the necessary degree of accumulation; and disappear when it increases again, although it does not arise to such a height as to be considered *febrile action* (1534). The only difference between these cases and those in which the patient is convulsed at the access of the fever, or in every cold fit, is, that in the latter, after the increased action has risen to that degree which is sufficient to lessen the fulness of the venous cavity and relieve the convulsion, it does not cease to rise as in the former, but continues increasing until it is high enough to be called *febrile action*.

1536. We have thus traced out the effects proceeding from the operation of the remote causes of disease on the heart, which, in consequence of the direct connexion of that organ with all parts of the body by

means of the arteries and the veins, and the consequent operation of those remote causes on every part, may be called the effects of their general action on the system. Some of these remote causes, however, also produce marked effects on the part to which they are immediately applied, and some additional effects, or symptoms, result from that local operation.

1537. Cold weakens the action of the arteries and veins, as well as that of the heart. When a considerable degree of cold is applied to a part of the body for some time, it swells, and becomes painful, and the colour and the temperature of the part are increased. These appearances show plainly that the vessels of the part are distended with blood, which alone can produce them. This distension can only proceed from the vessels of the part having yielded to the distending force of the blood impelled into them by the heart; that is, the power which they ordinarily exert in resisting the impulse of the blood, and sending it onwards in its course, is weakened. Redness, heat, pain, and swelling of a part, or inflammation, is therefore the effect of weakened action of the vessels of the part.<sup>1</sup>

1538. We are generally so well guarded against cold, that the external parts do not suffer in this way; but to the internal parts of the nose and mouth, and to the lungs, cold air has free access. Hence frequently arises inflammation of these parts.

1539. When a man is exposed to extreme cold, and the action of the heart is so weakened as to lead to accumulation of blood in the venous cavity, and sub-

<sup>1</sup> This doctrine was advanced by the writer in the year 1804 in a paper read before the Medical Society of Philadelphia.

sequent increased action, at the same time that some part of the internal fauces, or the lungs are affected as above described, the distension of the debilitated vessels, that is, the inflammation is much greater; and we have high fever and local inflammation; or pleurisy, sore throat, or croup.

1540. When a person with habitual accumulation of blood in the venous cavity, is exposed to cold sufficient to produce great debility of the vessels of the lungs, at the same time that by weakening the action of the heart a sudden and large addition is made to the fulness of the venous cavity, there is a combination of the effects of habitual accumulation of blood in the venous cavity, with fever and local inflammation of the lungs. This combination exists in the disease commonly called bilious pleurisy.

1541. The fever is sometimes excessive, and the increased action keeps up for a long time: sometimes the increased action though excessive in the first paroxysm, sinks almost to nothing afterwards: in other cases there is no increased action, and the symptoms consist of the effects of habitual accumulation of blood in the venous cavity of the highest grade, and of excessive distension of the vessels of the lungs. These last constitute the worst cases of peripneumonia notha.

1542. Violence done by a blow or a fall, is another remote cause of fever which produces local effects. A part may by such violence be so deadened, that its vessels entirely lose their power of propelling the blood, a complete stagnation of the fluids ensues, and the part dies. An inferior degree of violence deadens the vessels less, leaving them power to move the fluids slowly



along, but not enough to withstand the force with which the blood is impelled into them ; they necessarily yield and are distended, whence tumour, pain, redness, and heat ; or inflammation.

1543. A blow, besides weakening the vessels of the part to which it is particularly applied, may also weaken the action of the heart (91), and thus produce fullness of the venous cavity and fever : and the distension or inflammation of the part injured, which would arise under the ordinary, will be much greater under the increased action of the heart.

1544. We have thus endeavoured to execute the plan proposed (11, &c.), to investigate the connexion between the remote causes and the symptoms of disease, by inquiring into the effects of those causes ; next, into the effects of those effects or new causes, and so on, descending to the ultimate effects, the symptoms in question (19). Of the truth of the leading features of the explanation there can be no doubt. The remote causes of disease directly or indirectly weaken the action of the heart ; weakened action of the heart is necessarily and immediately followed by accumulation of blood in the venous cavity ; this accumulation is obviously capable of producing most of the effects attributed to it, and, it is believed, attention to the argument will result in the conviction of the truth of all advanced ; these effects moreover always occur in persons who show marks of the existence of such accumulation ; the effects appear when the alleged cause is present, disappear when it is removed, and are lessened or increased with it ; thus corresponding with the definition of the proximate cause, "*quæ præsens morbum facit, sublata tollit, mutata mutat*" (2).

# THERAPEUTICS.

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## CHAPTER XX.

### GENERAL VIEW OF THE TREATMENT OF THE PRECEDING MORBID AFFECTIONS.

1545. The effects of accumulation of blood in the venous cavity (chapter xix), variously combined, and sometimes one and sometimes another more prominent than the rest, constitute most of the diseases to which man is liable.

1546. In order to cure any of these, that is, to remove the effects, it is obviously necessary to remove all the causes that may still be in operation. Hence it is necessary to have in view the following objects ;

I. To remove the remote causes which may still be operating on the heart, weakening its action ;

II. To excite and support the action of the heart, if increased action have not come on ; or in the intervals of increased action, if it have ; or if it have subsided into habitual weakened action ;

III. To reduce the quantity of blood accumulated in the venous cavity, in consequence of the weakened action of the heart ;

IV. To reduce the action of the heart, produced by the press of blood from the venous cavity, if it exist.

1547. By accomplishing the first, the action of the heart is allowed to rise, and the health is often rapidly amended; the removal of the prime cause cutting off the whole train of consequences at once. And although this should not be the case entirely, the effects flowing from these remote causes, no longer sustained by communication with the fountain-head, are easily suppressed. By inattention to this object, though continued and persevering efforts be made to remove other links of the chain of causes, even the proximate cause of the most of the symptoms, and the effects be thereby diminished, yet will the cure be slow, and often incomplete.

By effecting the second, all the symptoms immediately flowing from weakened action of the heart (1210) are removed, and also accumulation of blood in the venous cavity is prevented.

By effecting the third, all the symptoms flowing immediately from accumulation of blood in the venous cavity are removed.

By effecting the fourth, the danger to be apprehended from excessive action of the heart, and subsequent weakened action, are prevented.

1548. The mode of attaining the first (1546), is pointed out by the nature of the remote causes.

When the disease is the consequence of using spirituous liquors, narcotic substances, coffee or tea, these must be laid aside.

When poor fare is the cause, light nourishing diet should be advised. This however is rarely the cause of indisposition in this country. Excessive indulgence in the use of meat highly seasoned, is a much more common cause, even among the poor.

Excessive fatigue is not an unfrequent cause among industrious mechanics and farmers.

Want of exercise is a very common cause of bad health.

Want of rest is also a very common cause in persons whose employment yields such moderate profit, or whose necessities on account of a large family are such that they are compelled to work late. These are chiefly industrious females, worthy of a happier lot. The two last are generally combined in their operation, the same necessity which compels persons in straitened circumstances to keep late hours, preventing them from using proper exercise.

Intense application of mind is commonly accompanied by late hours and want of exercise. Relaxation from study, early hours, and exercise, are necessary to the complete removal of the effects.

Cold is a remote cause of disease so painful in its operation that it is carefully guarded against, and seldom continues to operate for any length of time.

The dense gas arising from putrefying vegetable matter is a cause of most extensive operation. There is no other way of escaping its action than by removing the patient to an upper room of the house beyond its influence, or to a vessel at some distance from the shore, or entirely out of the neighbourhood of the source of the evil. These expedients have often been practised with great advantage, even when the patient was so weak as to require to be carried on a bed.

Increased action of the heart is also a remote cause of disease. It is to be removed by bleeding, &c.

1549. In order to accomplish the second object, we

must consider weakened action of the heart as suddenly produced, and calling for immediate relief; as occurring periodically, and calling for efforts to prevent its return, or to moderate its violence; or as habitual, in consequence of having been gradually produced, and requiring the application of remedies more durable in their action.

1550. When the action of the heart is suddenly and greatly reduced, efforts should be made to raise it by warm drinks, warm applications to the surface, and by emetics.

Time is often wasted in disputes about the kind of tea the patient shall have, and in waiting till it is procured. Hot water is almost as effectual as any tea; it should at least be given while the attendants are preparing tea. Warm toddy and wine are also useful in cases of extremity, and should be given until the pulse is raised. Patients sometimes take a surprizing quantity before this is effected, and without any evil effect.

Warm applications are made to the surface generally, or to the extremities. Currie's experiments show that they are more effectual when made to the epigastrium.<sup>1</sup> They may be made by cloths wet with warm water, vinegar, or spirit; by warm water in a bladder to the epigastrium; or by immersion of the body in a warm bath. Currie's experiments show that salt water has more effect in sustaining or exciting the action of the heart than fresh water (106). The addition of half a pound of muriatic acid to the bath I have reason to believe very beneficial.

<sup>1</sup> Currie's Medical Reports, p. 146.



1551. In some cases the action of the heart is so suddenly reduced, and the effects are so alarming, that there is not time to wait until a sufficient quantity of water can be warmed. In such a case as this, while using stimulants very freely, and with no perceptible effect upon the pulse, it suddenly occurred that an emetic, by driving the blood accumulated in the interior veins towards the surface, would relieve the patient. A large dose of antimonial wine in water was immediately given; it operated very quickly; instantly brought back the colour to the face, and rendered the pulse strong and full; and gave such complete and instant relief as can scarcely be realized by one who never witnessed it. The efforts had been very great previous to the administration of the emetic; strong toddy made of Jamaica rum had been given hot, and the patient at length drank the undiluted rum, which was handed by mistake, without the least effect. This alarmed all the friends, who had been roused in the night; and the patient was considered by all as about to die. In this extremity, and full of apprehension myself, the emetic was given with such benefit, as even remarkably to relieve the patient's mind for the result in any future attack.

1552. When the weakened action returns periodically, in addition to the means above stated, muscular exertion by rapid walking, riding, or labour, tonic medicines, and stimulant cathartics are more or less effectual in preventing it.

1553. Stimulant medicines are in this case of doubtful character, as they may readily excite the heart too much, and are very apt to increase the febrile action

that is to follow. Opium and camphor combined are however very effectual, and safe. The proper time to administer this remedy is about two or three hours before the time when the action is expected to be weakest.

1554. Warm applications to the surface generally, to the extremities, and especially to the epigastrium, are always safe, and very beneficial.

1555. Emetics are, in this case also, very effectual in sustaining or exciting the action of the heart, and often completely prevent it from falling into the low state in which a chill appears.

1556. The same is often effected by walking fast for an hour or two immediately preceding the time of an expected chill. Riding hard has frequently cured obstinate quartans. There are many modes of curing intermittents which derive their efficacy from the exertion they require; such as boring a hole in a tree, driving a pin into it, and running home without stopping.

1557. Tonics have long been the chief dependance of physicians to effect this object (1552). Of these the Peruvian bark is the most celebrated. The Columbo is also highly prized. There are many others needless to mention. I have long given them up, and used in their place the saturated solution of arsenic. It has scarce ever failed to prevent the return of a periodical cold stage. Relying on this, I have never tried the quinine; but from the report of those who have used it, it is not near as efficacious as the solution of arsenic.

1558. These remedies however I have made little or no use of for some years; and have derived more

benefit than is usually experienced from tonics, quinine, or the solution of arsenic, from the administration of cathartics at a particular period of the remission. Cathartic medicines are necessary in all such cases; and by giving those which are stimulant, in the decline of the action of the heart towards the lowest point, the action is sustained and even raised, so that it does not fall to that point at which a chill appears; meanwhile the cathartic operation is effected at a period when it can be best borne, viz. during the increased action, and when it is most serviceable in reducing it.

1559. By giving ten grains of calomel two hours before the time of an expected chill, it has been prevented entirely; and that the benefit was justly attributed to that medicine appeared from the fact, that on several trials on the same person, who had a confirmed ague, the chill appeared when the medicine was not used, and did not appear when it was.

1560. Aloes, rhubarb, jalap, and scammony, have more or less the same effect. That they excite the action of the heart is evident to any observer, more especially when they fail to operate on the bowels. In this case they sometimes produce considerable appearance of fever, and if given during a fever are pretty sure to increase it. Even given at the decline of a fever, they sometimes revive the increased action so as to prolong the paroxysm. That they support the action of the heart appears from the durable healthy red produced in the countenance by these medicines. I have for some years found these medicines variously combined with a small quantity of calomel, and given about two hours before the cold fit, effectually cure intermittents.

1561. When the action of the heart is habitually weak, and not alternating with increased action, remedies more durable in their operation have been employed. Bark, iron, mercury, the nitrate of silver, &c. have been used with benefit. But the stimulant cathartics above named completely answer this purpose also, and more advantageously than any of them; because, besides this, they accomplish another object to be presently mentioned. If there be a time of the day in which the pulse is lower than at other times, that is the period to give the medicine. If there is no such period to be observed, the matter may be left to the patient, who will find bed-time the most agreeable. The effect is visible in the increased freshness of the complexion in a very few days.

1562. The occasional administration of an emetic is a powerful aid in endeavouring to raise and sustain the action of the heart (1551).

1563. The cold bath is also a powerful means of exciting the action of the heart. We have shown at length (99, &c.), that the effect of cold applications to the body, is rapidly to lessen the action of the heart. The consequence of this sudden diminution, is a corresponding accumulation of blood in the cava, &c.; whence the heart, left, by the removal of the cause of its diminished action (cold), free to act again, with an additional quantity of its natural stimulus ready to pour into it, is considerably excited.

1564. The quantity of blood thus accumulating in the cava, &c. is greater than might without reflection be supposed. The heart, it is calculated, sends on two ounces of blood at every contraction. If this be cor-

rect, a heart contracting seventy-five times in a minute, sends on more than nine pounds of blood in that short period : and if the action of the heart be reduced one-half, there will be four and an half pounds retained in the cava, &c. in addition to the usual quantity, ready to pour into the ventricle as soon as the cause of the diminished action is removed.

1565. The third object (1546) is to lessen the quantity of blood in the venous cavity. This is to be effected by evacuations from the liver (1429 to 1432); and by bleeding, particularly in the jugular veins.

1566. The medicines which most effectually accomplish the former, belong to the class of cathartics ; but many of them are very far from answering the purpose. The object being to evacuate from the venous cavity through the biliary ducts, the test of success is the colour and consistence of the discharges. If they are yellow, green, dark, or black, the purpose is effected, because we know that these colours are given to the contents of the intestines by the fluids discharged from the liver (1417. 1430). These dark discharges are sometimes perfectly mild, and inodorous.

1567. From much observation and many experiments, I consider the medicines in common use as standing in the following order in reference to their fitness to effect this object, the most effectual being first named ; viz. calomel, aloes, rhubarb, jalap, scammony, colocynth, senna, and calcined magnesia. Salts of all kinds, castor oil, and gamboge are little adapted to this end. In some cases either of them will in a degree answer the purpose ; but in general, particularly after free purging has been once or twice effect-



ed, oil only discharges what may happen to be in the intestinal canal; and gamboge and salts produce an immense watery discharge, at first coloured by the contents of the bowels; but if continued, transparent.

1568. Calomel is slow in operating, often requiring twelve hours to effect a passage: it does not operate frequently, but the discharges are large. It gripes little or none in general, and is the most effectual medicine known, in producing consistent viscid discharges of various colours. Its action is more durable than that produced by other cathartics; accordingly it has been long observed that calomel prevents the constipation which follows the use of other medicines.

1569. Aloes resembles calomel in its operation more than any other vegetable cathartic. From actual experiment I am convinced it is the best substitute for calomel, with reference to the production of consistent discharges from the bowels. It resembles it in being slow, in not operating more than once or twice freely, and in griping very little in general; and to it also is justly attributed the property of a durable action on the bowels.

1570. A very strange idea prevails that the action of aloes is limited to the lower part of the intestines. This idea must have proceeded from the usual small dose operating only once in general, and from that discharge being merely soft. The same however is observable on giving any cathartic in such dose as to operate slowly, and but once. Calomel, rhubarb, and even jalap, sometimes act in the same manner. Aloes however, as well as the rest of these, in large doses operates more freely, producing several loose bilious

passages. I have given forty grains of calomel for several days in succession, and forty grains of aloes for as many more to the same patient, and found them act very much alike; the aloes producing such passages as those above mentioned. That aloes acts on the rectum alone is impossible, because it is very soluble in however dry a state it may be; and therefore must be in a situation to act, immediately on being taken into the stomach: that it is brought into as fluid a state in the stomach as other cathartics, is evident from the appearance of the medicines when they happen to be thrown up, a short time after being swallowed. The discharges produced by aloes are also more purely bilious and acrid than those produced by almost any other medicine, perhaps by any other; which certainly shows it operates on the upper part of the intestines as well as the lower.

1571. Rhubarb is next, of the vegetable cathartics, to aloes in these properties. In doses of five or ten grains it acts very much like the latter; but it is not quite so certain, durable, or effectual in producing tenacious or consistent discharges. In large doses it operates more freely than aloes.

1572. Jalap in small doses is less certain to operate than rhubarb. In large doses it is more active, the discharges being larger, and more liquid, but still of a cast decidedly bilious. Its action is quicker, and less durable. It nauseates very much, and leaves the stomach more out of order, than any of the medicines mentioned as adapted to the end in view.

1573. Scammony is more active than jalap, but much like it in its mode of operation; the chief diffe-

rence being, that the scammony is nearly twice as active, that it does not nauseate so much, and does not leave the stomach disordered. In consequence of the great complaints made of these disagreeable effects of jalap, trial was made of the scammony, and it was found an excellent substitute. It is so mild in its operation, and so little nauseating, that those accustomed to the use of it, are unwilling to do without it. It is the scammony from Aleppo that is here intended. It is very hard, dry, heavy, and of an iron grey colour.

1574. Colocynth I have made little use of, but conclude from a few experiments, that it produces about the same effect as twice the quantity of jalap, with more nausea and griping.

1575. The infusion of senna is a very active cathartic. The discharges produced by it are much like those from jalap. It however gripes more than that medicine.

1576. The calcined magnesia produces discharges very similar to those from the senna, but in small doses less serous.

1577. Of these medicines calomel being the most effectual in producing discharges from the liver, and being also tasteless, the dose small, and weighty, whereby it is retained when other medicines are rejected, would be used to the exclusion of all others but for one evil consequence of its free use, ptyalism. This is so dreaded, and is really so dreadful, that it becomes necessary to limit the use of this medicine. Its value is however so great, that it will always continue to be used as freely as the apprehension of salivating will permit; and in many cases that danger should be and will be disregarded even by the patient.

1578. The necessity of limiting the use of calomel leads to the employment of different cathartics in conjunction with it.

1579. After long and very close attention to this subject, I am led to believe that the best combination that can be devised to produce free, yet consistent evacuations from the liver, is the following; viz. equal quantities of rhubarb, aloes, and calomel, made into a mass for pills with water alone. Six grains of the mass, besides the water, viz. two grains of each of the medicines named, form a pill of a good size. In general from two to four such pills operate in eight or ten hours, without nauseating, or griping, and produce about three abundant, loose, passages. One pill will sometimes produce this effect; two will frequently do it.

1580. If it be known that a patient is liable to be readily salivated; or if it be probable that he will be under the necessity of taking the pills for some time, as in all cases of long standing, such as are called chronic cases, the proportion of calomel may be less: in such cases, I have found a pill containing two grains of rhubarb, two of aloes, and one of calomel answer every purpose.

1581. It sometimes happens that a person is so liable to be salivated, that he cannot be induced to take calomel. In these cases I am fully persuaded that there is no known substitute equal to the rhubarb and aloes mixed as above mentioned. In many cases this combination effects the object in view very well; but it certainly is not as effectual in producing dark coloured passages as that with calomel, the addition of

the latter medicine generally ensuring this object where the former may have failed.

1582. It is to be observed however that there are cases, every now and then occurring, in which nothing but calomel alone will ensure the attainment of this end.

1583. In some cases it is found that two, three, or four such doses do not operate on the bowels. In these cases, rather than take such a number of pills, patients prefer the addition of some active medicine.

1584. When this is determined on, jalap may be substituted for the rhubarb in the preceding prescriptions (1579 to 1581); or equal quantities of the two may be used very advantageously.

1585. The jalap, aloes, and calomel, produce, in those cases in which the pills with rhubarb are too inactive, pretty much the same effect as the latter do in common cases. The discharges are looser; there is more nausea, sometimes considerable; and the operation is quicker, and over sooner.

1586. The same pills, given when there is no difficulty in operating (1583), are very active, and produce very abundant dark bilious passages. They are therefore very well adapted to cases in which an active operation is desired; as in autumnal fevers of every grade.

1587. The observations made respecting the omission of calomel from the other pill (1581), are applicable here; as well as that respecting the occasional necessity of resting all hope on the calomel alone (1582).

1588. The jalap and rhubarb mixed (1584), and



used, (in the same proportion with either singly,) with the aloes and calomel, or without the latter, form a very useful combination of the qualities of the two: the compound is more active than the rhubarb alone, and less nauseating than jalap; the effect being a medium as to consistence.

1589. Sometimes jalap nauseates excessively; scammony may then be used instead of it, together with some rhubarb. Any quantity of the mixture of scammony and rhubarb, (in different proportions according to the necessity for the active ingredient,) with the same quantity of aloes, and of calomel, or with half as much calomel, form a combination which will be found very active, and very effectual in producing dark discharges. They mix perfectly well with water alone into a mass fit for pills.

1590. All the combinations above mentioned do the same, and need no kind of addition. Some gentlemen who have used these prescriptions, have complained of the bulk of the pills. On inquiry I found they had mixed some other ingredients; as flour, soap, &c. No addition is necessary.

1591. Even these active medicines sometimes fail: in these cases equal quantities of scammony and calomel may be used. Enough rhubarb should be added to form with the water a paste to unite them into a mass for pills, at the same time that it aids the operation, and is therefore preferable to syrups which are inert: one-fourth of the weight of the scammony is sufficient for this purpose.

1592. If these fail, I have sometimes found the addition of the eighth of a grain of tartarized antimony to each pill, very effectual.

1593. These active cathartics, however, (1584 to 1592), are often found to produce thin discharges, which never afford the same relief that follows the abundant consistent passages produced by the pills of rhubarb, aloes, and calomel (1579. 1580).

1594. These thin discharges may be disregarded for a short time in persons of full habit, and not reduced; but they are followed by evident disadvantage in those who are thin and somewhat infirm. This cannot be wondered at, inasmuch as the direct tendency of such evacuations is to weaken the action of the heart, thereby to produce accumulation of blood in the venous cavity, and consequently to aggravate the symptoms; as they will be found in such cases to do.

1595. In these cases it is not only best, but it is necessary to return to the first pills. It is of course necessary to take enough to effect the purpose. If this be not done, it is idle to take any. Sometimes a very considerable number is daily necessary. A physician, a friend of mine, who had had a disordered liver for some years, and who was a complete invalid, consulting me, was advised to this course. He found large doses necessary; he tried the active medicines, so as to lessen the number of the pills he took daily; he found that any active ingredient produced thin passages, and aggravated the symptoms; he returned to the use of the pills of rhubarb, aloes, and calomel, determined to persevere in the use of them, fully persuaded he must do so, or sink; he sometimes took near half an ounce daily to effect three or four consistent passages; and continued the practice for some months. When he commenced this plan, he

was weak and emaciated, and could walk out with difficulty; he walked up stairs very slowly and required assistance: in a month or two his appetite was good, his colour as good as need to be, and he went up and down stairs without any observable inconvenience, as fast as people ordinarily do.

1596. In some few cases, both of persons able to ride about and of those confined to bed, even rhubarb is too active, and I have found it necessary to use calomel and aloes.

1597. Sometimes the stomach is so irritable, or the aversion to medicine so unconquerable, particularly in children, that none of these aids to calomel can be used, and we are compelled to revert to the use of that medicine alone (1577). In these cases it often happens that the event is happier than we anticipated, and the calomel in large doses produces such a discharge as to relieve the patient in a remarkable manner, and to remove the irritability of the stomach, and thus enable him to take other medicines.

1598. To meet these cases, which occur very frequently, particularly in the autumnal season; and with certainty to save the lives of numbers who annually die in this very state, viz. of inability to take any medicine in sufficient quantity to operate on the bowels except calomel, which is withheld through fear; nothing is necessary but some means of enabling a patient to take calomel freely without dangerously salivating him. This is perhaps the only desideratum in the treatment of autumnal diseases, and the whole list of chronic affections produced by excessive fulness of the venous cavity.

1599. Until this is obtained, the best substitute is such a remedy as will counteract the effects of calomel on the mouth. During the epidemic of 1826, in which this was a subject of great daily interest, I derived most essential benefit from such a remedy communicated to me by Dr. M'Guire of Winchester. It is a solution of the sulphate of copper in water. A very strong, perhaps a saturated solution, was carried in the pocket, and a sufficient quantity poured into a cup of water to give it a blue cast: with a mop dipped in this weak solution, the sore places in the mouth were moistened frequently every day: the effect was, that when sloughs were appearing in the side of the cheeks, and just behind the last jaw tooth, this solution either caused the sores to heal, or rendered them stationary, under the continued exhibition of very large doses of calomel alone for near three weeks.

1600. In administering medicine, the form of pills is preferred because they are more agreeable than draughts, and more easily retained. As in chronic affections it is difficult to induce patients to take medicine as regularly as they should, it is an important matter to put them upon that mode of taking it which is most agreeable. The form of pills is certainly the most convenient and agreeable that can be proposed. Sometimes however there is a difficulty in swallowing them. The most ready way to take them, is to pour them out of a dry spoon down the throat, holding the head back at the moment, and having at the time a small quantity of water in the mouth. In this way I have given, to persons who were occasionally vomiting, six at a time, without their being at all conscious of the number: they are seldom sensible of more than two.

1601. If the patient will not, or cannot take pills, he must resort to rhubarb, jalap, or scammony and calomel. The first effects the object of evacuating from the liver better than the others; the two last being much more apt to produce thin evacuations.

1602. Infusion of senna, castor oil, and magnesia, are frequently used in cases of difficulty. In extreme cases, they pass through the bowels, and are discharged as they were taken in, unaccompanied by any thing desired to be evacuated. In the autumnal season of 1826 the difficulty of operating on the bowels was extreme, and general. I had then an opportunity of seeing the infusion of senna, oil, rhubarb, and magnesia, pass unaltered. It is folly to place any dependance in them in such extreme cases; and in others they are not wanted, the pills accomplishing the object in view much more effectually.

1603. The infusion of senna is sometimes useful after the patient has taken a quantity of the pills without effect, in commencing an operation; but if this medicine be continued, the discharges will soon become thin and light coloured. It should therefore be laid aside as soon as a passage is effected, and the operation continued by means of the pills.

1604. The croton oil operates very much in the same way, and is not at all adapted to effect the object in view.

1605. The neutral salts, Epsom, &c. are not all adapted to this end (1566): their effect is to produce an abundant serous discharge from the bowels, which seems to be derived from an increased discharge from the vessels which pour out a thin fluid upon the inter-



nal surface of the intestines. When the evacuations are dark, taking a dose or two of these medicines renders them lighter, perhaps quite yellow, and thin ; and in those cases in which a free and continued discharge of dark coloured matter is necessary to the recovery of the patient, they do essential injury by wasting time, and sometimes by throwing him into such a state that it is exceedingly difficult to re-establish the dark passages.

In the cases of extreme difficulty, if salts be administered, the certain consequence is loss of time, and injury to the patient by weakening him unnecessarily.

1606. Gamboge is perhaps of all the medicines mentioned the most injurious. It operates violently, and produces thin serous passages, with but little bile. In some cases a small portion may be added with advantage to the pills above mentioned, in order to commence an operation ; but if it be not then immediately withdrawn, it will certainly change the passages from a dark to a light colour, and even to a transparent serous fluid.

1607. The evil arising from this kind of discharge is an aggravation of every symptom. The patient may be discharging quarts of a thin fluid, and he and his friends be made to believe that the medicine is operating very well, while he is every day becoming weaker, and more stupid, his skin darker, his eyes duller, heavier, and redder, and his delirium more constant. In this situation, the free operation of a single dose of such medicines as produce dark consistent passages, will make such an alteration as could not be anticipated except by one who had in former cases experienced it.

1608. In these cases (1603 to 1606), when the discharges are found to have become light coloured, thin, and serous, the patient ought immediately to take a large dose of calomel, and repeat it every six or twelve hours, or oftener, until the passages become dark again. When there is real danger, it is a folly to hesitate about a few grains more or less. It is not uncommon for a physician to object to give a patient in these circumstances two or three scruples of calomel at a dose; but he will give ten grains, and repeat it every two hours until he has exceeded the quantity objected to. As soon as the calomel has had the effect of restoring the dark evacuations, they may be kept up by some one or other of the pills above mentioned.

1609. Patients are often inclined to use calcined magnesia when there is a difficulty in operating, and when there is not.

1610. In the former case it is liable to the same objection, of producing thin, light coloured, or colourless discharges; and drives us to the same necessity of using large doses of calomel to counteract the evil (1608).

1611. In the latter cases (1609), it often answers apparently well for a time, particularly when the patient is not very infirm. When however the patient is thin and delicate, the bad effect shows sooner.

1612. The following case shows the effect of this medicine, and that of the pills of rhubarb, aloes, and calomel, in strong contrast: it is just what I have often observed.

A lady was advised to take, for a chronic affection, enough of the pills above mentioned to operate on the

bowels every day two or three times. She preferred calcined magnesia, alleging that that medicine produced in her case bilious discharges. This was true, in a remarkable degree, but the passages were too loose and fluid. She continued however to take the magnesia for some time, and found the symptoms relieved considerably; but complained that she felt weak in the knees. The necessity of giving up the magnesia for the pills was then urged, and she consented to take the latter. They produced two or three consistent passages every day, and were continued, without intermission, until she became stronger, fatter, and in better general health than she had enjoyed for years. She took them several months. When she commenced, she walked along slowly, with the appearance of infirmity, and upon any exertion, as on ascending a flight of steps or a little hill, her respiration was hurried, and she could scarcely proceed. After a month or more, she walked from one side of the town to the other, in a quick and lively manner, and ascended a hill without difficulty or delay.

1613. In cases of extreme difficulty of operating on the bowels, injections are generally employed. They however often fail. They answer pretty well in those cases in which, in the commencement of an illness, in the very first attempt to purge, it is found difficult. By injections in these cases the ordinary contents of the intestines are evacuated; but after this is done, if the difficulty of operating continue, injections answer very little purpose; except, occasionally, when the patient has taken medicine enough gradually to load the rectum.

1614. Injections of jalap, from thirty to sixty grains in a small quantity of water, I have found very useful occasionally. In one case in which every effort failed to move the bowels by active cathartics, the bowels of the child were distended by three large injections of warm water, in immediate succession before he was allowed to discharge any : the consequence was complete relief, by a general and violent effort to overcome the obstruction, made by cloths applied externally to compel him to retain the water as long as possible.

1615. In one instance, a child, being unable to retain even common doses of calomel, was purged for a fortnight during which he was ill, by injections of jalap, composed of forty grains to a gill of water ; he had them every two or three hours : he took very small doses of calomel also ; but such as were found to be insufficient without the jalap. The discharges were continually of a dark green colour ; he recovered.

1616. The effect of cathartic medicines is greatly promoted by bleeding. I have often been compelled hastily to tie up the arm of a patient, in consequence of a sudden disposition to discharge the contents of the bowels. This is especially the case with children : on being bled freely, they are almost certain to vomit or purge, and often both. There can be no doubt of the propriety of having recourse to this operation, when the pulse is strong ; but the difficulty of effecting a passage is often accompanied by a weak pulse.

1617. If the attack be sudden and the strength not wasted ; if the pulse, though small, and moderate in force, or even weak, be somewhat slow and regular, and not very soft ; and be not varied by any position

of the patient, as by rising and continuing erect; bleeding may be tried. If the pulse, which ought to be felt during the whole time, do not fail at all, the bleeding may be continued.

1618. A lady with intense pain in the head, had a pale and cool skin, and weak, but regular, and slow pulse, not altered by rising and sitting up. A vein being opened, a pint of blood was drawn without lowering the pulse; and on untying the ligature, the blood continued to flow freely from the orifice. A cathartic had been given in the morning, had operated well, and the operation had been over for some hours when the patient was bled. In two hours after, I was called out of bed, and found her excessively sick, and purging freely. The purging continued till some time next day.

1619. In another instance the bowels had long been in such a state as to require enormous doses of active cathartics to move them. Forty or fifty grains of scammony were not more than enough. It was in vain to give less, and relief was absolutely necessary. In this state of things a hemorrhage occurred, and the patient threw up such a quantity of black blood that she sunk down by degrees, apparently into the arms of death. She was left quiet however, and in a little while the pulse was felt again; she lay some hours as if asleep, and very gradually recovered her recollection. After this hemorrhage the bowels were so easily moved that no medicine was necessary, a common injection procuring an abundant passage or two every day.

1620. It is certain therefore that bleeding may of-



ten be practised when the pulse is weak, with perfect safety, and with the effect not only of facilitating the operation of cathartic medicines, but of producing a purging without their aid.

1621. When the difficulty is overcome, although large doses are sometimes found necessary to keep up the discharges, the case goes on pretty much as usual in all other respects; the symptoms are the same, the discharges the same, and *if they are maintained*, the event is as favourable in all respects.

1622. Under the operation of these medicines, the discharges from the bowels, at first dark brown, black, or of a deep bottle green colour, gradually become lighter, and finally yellow. During this process, the symptoms also become more and more mild, and in almost every case, they disappear by the time that the passages become yellow. In some rare instances however, the discharge must be kept up even after that occurrence, in order to a perfect cure.

1623. In pursuing this course, it occasionally happens that the patient for some time feels no better, and to all appearance is no better. I have in these circumstances almost always found families, on the first occasion in which they have desired my assistance, uneasy, but never afterwards, unless made so by impertinent interference: and even such efforts have scarce ever been able to prevent the prosecution of the plan. In these cases, although the patient seems to one unacquainted to be making no progress, that process is going on, which, well followed from the beginning, will end in health. He is in the situation of a boat urged up a rapid stream, all the efforts made

to impel it along seem scarcely to move it, it may sometimes even appear stationary, and all seems labour in vain; but if the effort is intermitted but for a moment, the rapidity with which it loses ground shows strongly how much was done, though so little appeared to be done. So here, the good effect of continuing the cathartics is often strikingly shown by omitting them even for a day.

1624. Sometimes the patient is distressed with a burning produced by the acrid bile brought down by these cathartics, particularly by the pills of rhubarb, aloes, and calomel. This is readily relieved by omitting the aloes, or by substituting a small proportion of jalap or scammony for a part of the rhubarb. A small dose of magnesia will also relieve this burning in a short time; these medicines increase the fluidity of the passages, and thus render them less acrid.

1625. This treatment, in chronic diseases, often requires a patient to take medicine for some length of time, whereby his confidence in his physician is considerably tried; but I have never met with a solitary instance in which the result was unfavourable. The natural aversion to medicine tempts them, even when they are perfectly satisfied that the course is beneficial, to neglect the directions of the physician as soon as they recover considerably. They are sometimes so entirely relieved from the prominent symptoms, that they believe themselves well; while the presence of other more obscure, but not painful or distressing effects of accumulation of blood in the venous cavity, together with the continuance of dark or green passages, indicates the necessity of perseverance in the use of the medicine.

1626. If under these circumstances the patient is negligent, the symptoms soon become more marked, and those which he thought had been entirely removed, having only been so far diminished as to be no longer troublesome, appear again, and alarm him with the apprehension that all he has done is vain, or excite him to a renewed effort to overcome them. Even after this disappointment, when the patient by renewed diligence has again reduced the symptoms; such is the delusion of hope that he is led to believe he is well, and again, and perhaps again, prematurely to desist. In this situation the return of the symptoms throws him into despair, he sometimes goes so far as to deny that he has ever received any benefit from the course; and it becomes necessary to recapitulate the history of his case, and to show him that relief was obtained in the beginning, that it was by neglect that the symptoms have returned, over and over again, and that he himself, in his own experience, has sufficient ground of belief that the treatment is proper.

1627. Objections are very often made by over-anxious friends against the continuance of the use of cathartics. They urge the danger of weakening the patient by such a course. This, experience shows not to be well founded; as is fully evinced by a case stated above (1612), and by others without number.

1628. It is often objected that by taking medicine frequently, a habit will be formed; whence there will arise a necessity for the continued use of it, so that the patient cannot do without it. The substance of this objection is, that the patient will, *by the use of cathartics*, fall into such a state of body, that they will

become necessary to relieve him : but this is already his situation ; and he has to choose between suffering and using the means of relief in his power.

1629. It is also objected, that it will become necessary gradually to increase the dose, inasmuch as the medicine loses its effect after a time. This is not true in general ; indeed very rarely so. In general, after a while a less dose is sufficient to produce the necessary effect. A patient who for some time took from eight to twelve pills, has latterly been able to reduce the dose to two and even one.

1630. It may be objected that the aloes produces the piles. It does not more so than other medicines. I used four pounds of aloes in the course of the fall of 1824, and very nearly as much in the fall of 1825, and heard very few complaints of piles. In one instance a patient had laboured for years under this complaint in a very extraordinary degree. He took pills of aloes and ipecacuana, in the proportion of four of the former to one of the latter. These, he said, gave more relief than any thing he had ever taken ; insomuch that, from having been confined at home for a long time as an invalid, he rode about the neighbourhood, and went to work at his business. In other cases the piles, which were present in the commencement, disappeared while the patient was taking the aloetic medicines. This has frequently occurred.

1631. With regard to the proper or the best time for giving the cathartic, it may be observed that these medicines have been already mentioned as capable of exciting the action of the heart, and that they therefore may be made to accomplish two objects, the se-



cond and the third (1546). In order to this, it is necessary to give the dose while the pulse is declining towards the lowest state of depression it suffers in the twenty-four hours. The action of the heart is thereby supported, and the greatest degree of accumulation of blood in the venous cavity, and consequently the symptoms depending on it, prevented. When there is no time marked by any extraordinary degree of weakness of the pulse, the convenience of the patient may be consulted (1561).

1632. It is proper to mention here, that in some cases, while attempting to procure the necessary evacuations from the liver, instead of those usually observed there is a discharge of black blood in considerable quantity. This sometimes occurs early in the disease before any other discharge from the liver, sometimes in the course of the treatment; occasionally also when no medicine has been given. It always alarms the patient and his friends, and sometimes the physician. It ought seldom to alarm either, if such a judgment may be formed from the following facts.

1633. Among the whole number of my patients thus affected, I have not known more than five deaths. In one of these cases the patient was extremely ill, with the highest grade of bilious fever, and was almost entirely neglected; in fact left to his fate. I saw him not until near his death, on the seventh day, when he was covered with petechiæ. In another, the bowels were not evacuated at all, though cathartic medicines were given very freely. The hemorrhage became less and less, and was never considerable. In the other three cases the hemorrhage disappeared during the use



of cathartic medicines, and the patients died some time after through gross neglect of the directions given.

1634. In all the other cases, which occurred since the autumn of 1821, cathartics have been used freely, and while they were in operation the discharge ceased: and this was the case whether the discharge preceded or followed the administration of the cathartics (1632).

1635. In some cases the hemorrhage was manifestly and immediately beneficial. In one case, the patient had been lying in a fever, with weak pulse, stupor, and pain in the abdomen, for ten days. Cathartics had been given daily: when the hemorrhage appeared, the blood was discharged pure, black, and fluid, five or six times in the day, in quantity equal to a moderate passage. On the next day the patient was up, and well, and walked out.

1636. On one occasion, the patient being ill, and discharging bilious matter every day, began at length to pass black, fluid blood. The physician alarmed was about stopping the hemorrhage by an opiate. Being consulted, I advised him to proceed with his plan of purging, the hemorrhage being not at all injurious. He did so, and the patient recovered, and became very fat.

1637. On another occasion the patient having taken several cathartics without effect, at length discharged a very large quantity of blood, black and fluid. The cathartics were notwithstanding continued: the discharge of blood also continued till the third day, apparently produced by the action of the medicine; the evacuations occurring in time, and quantity, suited to the time of administering the medicine. On the third

day a passage appeared of a doubtful character. It was nearly like black bile, but did not give a yellow colour to the side of the white vessel which contained it, as bile does, however black. The subsequent passages were however more and more like bile, and in the course of the day they were decidedly so. They in the following day became less and less dark, and finally yellow; and the patient recovered.

1638. Besides aiding in the manner above stated in evacuating from the venous cavity (1616), bleeding, when not carried to the extent of reducing the action of the heart, immediately reduces the quantity of blood accumulated in that cavity. For, the sum total of the blood being lessened, if the action of the heart keep up, the quantity sent into the arteries will be the same, and of course less remains in the vena cava and its branches. Bleeding should therefore be practised, with the view of lessening in both ways the quantity of blood accumulated in the venous cavity, whenever the effects of such accumulation are distressing; if it can be done without reducing the action of the heart, and thereby increasing the evil. Thus, when there is a violent pain in the head, back, or bowels, while the face is pale and the pulse weak, the patient will be greatly relieved if blood be drawn without lowering the pulse. As these cases are sometimes exceedingly severe and very dangerous, it is highly important to be able to decide when bleeding may be safely performed.

1639. In some cases the pulse, though weak, is not so much so as to render the operation very hazardous. In these, the rule laid down above (1617) will be a sufficient guide. We may safely proceed as long as

the pulse keeps up, as in the case abovementioned (1618). Proceeding in this cautious manner, I have taken a quart of blood at once from a patient with weak pulse, and with vast relief from a violent pain in the bowels.

1640. Bleeding is sometimes safe and beneficial in circumstances in which few or none would venture to advise the operation. A friend of mine had had a violent ague and fever for some time, but had greatly neglected himself, the demand for physicians being so great, that though sick he was compelled to ride. He was arrested by the ague, sometimes at the house of a patient, sometimes on the road, and has been compelled to lay by the side of a fence till it wore off. He one day arrived at home entirely delirious, and continued for some time to have most violent returns of the disease. In one of the agues, lying on his bed, and apprehending nothing less than death if not relieved from "the intolerable sense of fulness and distension, such as to create pain in the neighbourhood of the heart, lungs, and stomach, and frequent palpitation, and occasional cessation of the action of the heart for a pulse or two;" and "knowing that no physician would bleed him in that state," he would not send for one; but sent for a neighbour who took two pounds of blood from his arm, with such relief, that in a very little time he had upwards of a pound more taken. The disease was a tertian. On the day following the bleeding, there was a slight return out of order. On the regular day for the paroxysm he had none. On the fourth day, which was the day of the intermission, he neglected his usual precautions of keeping warm

in bed, and using warm applications to the feet, and had a severe paroxysm; after which, using those precautions but taking no medicine, he had no return till that day week, the eleventh day. On the thirteenth he also had an ague. On the fifteenth the oppression became intolerable. He “panted like an animal that had been chased.” In this situation, the ague apparently approaching, he had three pints of blood at least taken, which so relieved him that he got out of bed and sat up conversing until late at night. He had no chill whatever, but a fever as usual. Some days after, being somewhat distressed at the time when the disease should have returned, he lost a quart of blood, and arrested it, and had no chill till the eleventh day after, and then a slight one.

1641. This remarkable case shows plainly that we might often bleed with safety and with advantage when we do not. In ague there is an immense load of blood in the interior vessels. In a similar state in some other diseases, as in asthma, bleeding is practised with advantage; and there certainly is, therefore, reason to believe that it might often be beneficial when the head, the breast, &c. are greatly oppressed on the approach of an ague.

1642. When the pulse is so low as to make bleeding appear hazardous, and we know that the important parts abovementioned are oppressed, the pulse may be roused sufficiently to admit of bleeding, by the warm bath, or by emetics. I was called about daylight to a lady who complained of intense pain in the head, the pulse being very weak. Bleeding seemed to be out of the question from the latter symptom,

while the former pressingly required it if practicable. In order to raise the pulse she took an emetic. After the operation, the head still aching severely, but the pulse better, she was bled with some relief. Several cathartics were given in the course of the day, which operated very slightly. In a few hours after the first bleeding, the pulse having somewhat risen and the head still aching, she was bled again. At night the pulse was considerable, and the pain in the head not being entirely removed, more blood was taken. Some objection was made to this bleeding, and after a pint had been drawn, it was insisted that the arm should be tied up. After the bandage was removed, the arm continued to bleed as freely as before ; which evinced fulness of blood, and that she could have borne the loss of more. She was entirely relieved by the three bleedings.

1643. In those cases in which bleeding has been beneficial although the pulse was weak, it has been said that the pulse was in a depressed state ; and in this state it has been thought safe to bleed boldly. Whatever our opinion may be of the propriety of bleeding when the pulse is weak, we should rely on it no farther than to open a vein ; the continuance of the evacuation should depend alone on the pulse continuing as strong as before the vein was opened.

1644. As the object is not to weaken the action of the heart, but only to get rid of a quantity of superfluous blood, it is advisable to bleed from a small orifice. Such an one will let off a greater quantity of blood without diminishing the action of the heart, than a large one. The blood will frequently be found in



such cases to continue to flow after the bandage is removed ; and I have been led by this circumstance, in cases in which it was doubtful whether the bleeding could be safely continued, to untie the arm, and if the blood continued flowing, to suffer it to do so for some time longer.

1645. The quantity of blood in the venous cavity may also be lessened in the most direct manner by bleeding in the jugular vein. The effect of this operation, in instantly removing the effects of fulness of the venous cavity, was strikingly exemplified in a case of mine a few years ago. An old woman, exceedingly gross in her habit, had suffered for many years under various symptoms of high grade, the effects of fulness of the interior veins. On one occasion being called to see her, I found her in a sitting posture propped up by two crutches, entirely insensible, her arms hanging down, her skin very cool, her pulse very small and weak, the veins of her arms empty and not filled by putting a ligature round the arm, all her features red and swollen in a remarkable manner, and the jugular veins as large, on careful comparison, as my fingers. She was thought to be dying by a number of bystanders. Having examined into her situation, and not thinking any thing could be done for her, I was standing reflecting on her case, when it occurred to me that I had attributed her symptoms to fulness of the venous cavity ; that the practice founded on this view of her case had been, over and over, remarkably successful ; that on this occasion the usual marks of weakened action of the heart, and therefore of fulness of the venous cavity were present, and strengthened

by evident fulness of a part of that cavity, the jugulars; and that, therefore, bleeding in the jugular should relieve the symptoms. The determination was immediately made to perform the operation, to the very great surprize of the persons standing about, some of whom protested against the attempt. They were however much more surprized at what immediately followed; the blood flew out with violence, and by the time that half a pint was taken, the patient opened her eyes, looked about, and called a woman across the room by name. She had not risen from bed without aid for some time: on the next day she arose without help, and walked to the front door. She lived but a short time however: having eaten a very hearty meal, she fell into a stupor from which she never recovered: after death her jugular veins were tense and as large as before mentioned.

1646. The third object in view therefore, to lessen the quantity of blood accumulated in the venous cavity (1546), is accomplished by purging with such cathartics as produce a discharge from the liver; and by bleeding in such a manner as not to weaken the action of the heart.

1647. When increased action does not exist, either on the first appearance of the effects before the heart is roused to increased action; or after that state has appeared and passed away, and from negligent or improper treatment some of the effects remain; or when from indisposition of the heart to increased action it never takes place; the three preceding objects are all that are to be accomplished, in order to a cure of all the above recited effects of the chain of causes, the

remote causes in general, weakened action of the heart, and accumulation of blood in the venous cavity.

1648. When however increased action of the heart does exist, it is to be reduced ; and as soon as that is effected, the case is brought nearly to the same state as if the increased action had not occurred ; and our practice should be regulated accordingly (1546 to 1646).

1649. The fourth object is to reduce the action of the heart, if it exist. This is effected by bleeding, by purging, and by cold applications. Great discharges from the skin and the kidneys, also reduce the action of the heart ; but we cannot rely on producing these evacuations by any known means. It is however completely in our power at once to control increased action by the means abovementioned.

1650. The cathartics used for the purpose of accomplishing the third object (1565, &c.), may be made to effect the last. The dose may be increased, or repeated, so as to evacuate to any desired extent. It is however proper to time the doses of these medicines, in such a manner as to derive from them all possible benefit. They should be given when the action is low so as to raise it, and at the same time to operate on the bowels during the rise of the action, and keep it from running too high. Used thus, these cathartics are so effectual that no other means of reducing the increased action in most cases is necessary.

1651. There are cases however in which the action is so great, that this evacuation is utterly insufficient to reduce it ; but it is completely in the power of the practitioner to effect the reduction by bleeding. The blood being the natural stimulus of the heart, drawing

off this fluid immediately lessens the action, and affords surprising relief. It is often necessary to take blood to obviate immediate danger; and, even when absolute danger is not apprehended, it is always advisable to prevent the prostration of the system which follows excessive action of the heart and arteries. It should be carried to the extent of making a sensible impression on the colour of the countenance, or on the pulse; and should be repeated without regard to shortness of interval between the bleedings, or to the quantity drawn, so as to insure the effect desired, the reduction of the violent action of the heart. In some cases indeed, there is no other mode of judging whether blood enough has been drawn. In a case of convulsions so violent that the patient could not be held still for an instant, the blood flew in every direction and soon covered the floor. It was impossible to form any kind of estimate of the quantity drawn. The pulse was excessively high, and the bleeding was continued until the patient became composed, and the fit was cut short, having continued a much shorter time than usual with him.

1652. It frequently happens that the next paroxysm requires with equal urgency a repetition of the bleeding; and sometimes for days together the patient must be bled in every paroxysm to keep down the violence of the fever.

1653. Sometimes the heart is so excited that, although its action be decidedly lessened by loss of blood, in a very short time it is as high as ever; and though reduced by a second bleeding, it again quickly rises, and requires a third, and even a fourth, in the same day.

There is in these cases as great necessity for the subsequent bleedings, as for the first. This necessity has frequently occurred to me, and in every instance in which the patient has been repeatedly bled in the same day, the effect was such as completely to satisfy all concerned of the propriety of the practice ; although in every case opposition was made to it when first proposed.

1654. In cases in which the pulse is not so strong, but still is more so than natural, bleeding is often highly advisable, when it may be, and actually is dispensed with. It cuts short or removes at once a degree of increased action, which may not with any certainty be reduced in several days by any other means.

1655. With respect to bleeding children and old people, it may be observed that children scarce ever faint ; a considerable loss of blood in them almost as uniformly produces vomiting or purging at the instant of the sinking of the pulse, as in adults it produces fainting. In old people the pulse is very often intermitting ; a regular pulse is a sign of increased action. Rush has made a similar observation.

1656. When a patient is naturally delicate in health, and liable to local affections, the necessity of bleeding when the action of the heart is increased, is greater than in sound constitutions. In the latter, when every part of the sanguiferous system is sound, in good tone, and not disposed to give way, the increased action of the heart will generally wear out by degrees, without affecting one part more than another. But when the vessels of a part are naturally or accidentally weak, they are more liable to be distended and to suffer accumu-



lation of blood in them. Bleeding is therefore often more necessary in these cases than in vigorous constitutions, and it is often necessary to carry it to a greater extent in them.

1657. Another most effectual and perfectly safe means of reducing increased action of the heart, is the affusion of cold water. Currie's reports of the effects of this practice, in all parts of the world, fully establish its safety and its efficacy. The only danger is in the abuse of this remedy, or using it at improper periods. It is intended to reduce increased action: if it be continued till the action is reduced very low, it is abused. The cold stage is an improper time to use the remedy, as it might readily extinguish the action of the heart when already low. The danger of this abuse of the remedy was soon discovered and pointed out by Currie.

1658. I have often experienced the most striking benefit from this practice. A child of mine three years old, uncommonly robust, had an extraordinarily high fever; he groaned continually, and seemed to labour under great distress; his pulse was so strong, and the heat of his body so great, that immediate relief seemed absolutely necessary. He was taken out of bed in the night, and his head and body well washed with a towel dipped in cold water, till his pulse became moderate, and the heat of his body not greater than usual. He immediately after fell into a sound and easy sleep, and had not a single return of the fever.

1659. It is however so inconvenient to apply this remedy that it is not as often used as it should be. The inconvenience is much less to bathe a part of the

body; and if it be freely done, it will be effectual. Dr. Green of Berkeley county, related to me a remarkable instance of this. He had a high fever, and removed it in a very short time by having cold water poured on his head as he leaned over a tub. The effect on the whole system was in this instance produced by cooling the large portion of blood in the head (1467), which was constantly renewed from the general mass.

1660. The internal use of cold water is also of very great benefit in reducing increased action of the heart, as I have often experienced. It is well deserving of attention as a remedy, and is extremely agreeable. Such is the infatuation of some people however, that they shudder at the idea of drinking cold water; while mulled wine, cider, &c. or wine in any shape they think not at all injurious.

1661. A very common objection among the people in some quarters of the country is, that cold water is dangerous when taking medicine, particularly calomel. This scrap of former ignorance is even countenanced here and there by physicians, who either know no better, or are afraid to oppose the whims of the ignorant. It is scarcely necessary to state my experience on this point. I will just observe, that in upwards of twenty years' practice, my patients have most unreservedly used cold water and ice in fevers, at the same time that they were taking calomel, &c. and that I never knew a solitary instance of injury from the practice.

1662. Nauseating medicines also have considerable effect in reducing the action of the heart. They are however so very disagreeable, that I have rarely ever used them with this view, and it certainly is preferable

to effect the object by either of the other means above mentioned.

1663. What are called febrifuge powders, such as nitre with a small portion of antimony and calomel, produce a very moderate effect, and I have long since laid them aside. If they nauseate they are more active, but in either case are unnecessary. Either of the three remedies above recited will produce the desired effect more certainly, decidedly, and pleasantly.

1664. When by these means the action of the heart is reduced to a natural state, it remains to attend to the other objects heretofore stated (1546), in order to the removal of the effects, which constitute the symptoms of disease.

1665. We now proceed to apply these general principles to sundry diseases.

## CHAPTER XXI.

### THE APPLICATION OF THE PRINCIPLES ADVANCED TO SUNDRY DISEASES.

1666. The effects of accumulation of blood in the venous cavity, variously combined, constitute most of the diseases we meet with.

1667. We have seen that some of the remote causes have both a general operation, weakening the action of the heart; and a local operation (1536. 1537. 1543). The diseases proceeding from the general operation may be accompanied by local disease, caused by the local action of the remote cause, or may not. Both those which are not accompanied by such local affection, and those which are, may be accompanied by increased action of the heart, or may not.

1668. Simple fever is an instance of general disease, with increased action of the heart, and without local affection proceeding from local action of the remote causes. Of this class are the majority of cases occurring in all hot weather epidemics; and also of those proceeding from the operation of the other remote causes.

1669. Of those without increased action of the heart, and without local affection proceeding from local action of the remote cause, dyspepsia is an instance. Of this class are a considerable number of the cases

of hot weather epidemics. During an epidemic we see cases without increased action so frequently, as to have led to the expression of a bilious attack, for such cases, instead of a bilious fever.

1670. The remote causes universally weaken the action of the heart, producing in every instance, in the first place, paleness, languor, &c. Thus a severe fall or blow produces paleness, languor, pain in the head and back, anorexia, sometimes nausea and vomiting, stretching, chilliness, and every appearance of the cold stage of fever (91). In some cases these symptoms are followed by increased action of the heart; in others they are not, the patient continuing feeble, languid, with pains about the head and body; and, if he be subject to any disease produced by accumulation of blood in the venous cavity, he will be pretty certain to experience an attack of that disease. Thus, a fall has produced all the symptoms constituting nephritis, in a patient of mine subject to that disease; in another, subject to shortness of breath and difficult respiration, the same cause has produced this effect.

1671. All the remote causes act in the same way, producing first weakened action of the heart, &c.; in some, increased action supervenes, in others, not. The dense gas arising from marshes, like the rest of them, produces weakened action of the heart, accumulation of blood in the venous cavity, and their effects, paleness, languor, pains, anorexia, &c. In some cases increased action of the heart follows, in others not: that is, in an autumnal epidemic some have increased action, others not (1669): and those who are subject to any affection depending on accumulation of blood in



the venous cavity, will be pretty certain to experience an increase of that affection.

1672. Under the same head, of diseases without increased action of the heart (1669), may be classed all those cases in which in the commencement there was increased action, but the whole attention being directed to reducing it, and none to reducing the fulness of the venous cavity, the effects of that fulness continue after it is reduced (1528).

1673. The first (1669 to 1671) are cases in which increased action does not come on, and the effects of accumulation of blood in the venous cavity occur without it. The last (1672) are cases in which increased action supervenes on the other effects, but declining again leaves them with the patient still. These two embrace the great mass of chronic diseases.

1674. Of general disease with increased action of the heart, together with local affection proceeding from the local operation of the remote cause (1667), pleurisy is an instance; and a fever with contusion from a fall or blow, is another.

1675. Of general disease without increased action of the heart, combined with local affection proceeding from the local operation of the remote cause (1667), a fall, producing a contusion, and head-ach, back-ach, and anorexia, without fever, is an instance.

1676. We shall consider first the diseases proceeding from the general operation of the remote causes, uncombined with local affections proceeding from the local action of the remote causes. These we have seen (1667) may be accompanied by increased action of the heart, or may not. We shall commence with

the latter, and show from the nature of the remote causes, from their known effect on the system, from the accompanying affection of other parts of the venous cavity besides the one principally affected, from the readiness of their conversion into one another, from the effect of spontaneous discharges from the venous cavity in lessening or removing them, and from the readiness with which the same is done by artificial evacuations from the same cavity, that they are effects of accumulation of blood in the venous cavity.

## CHAPTER XXII.

### OF APOPLEXY.

1677. When a person is deprived of his external and internal senses, and of the power of voluntary motion, so as to fall if he happen at the time to be sitting or standing, and lies as if in a profound sleep, from which he cannot be roused, he is said to have an apoplectic attack, or the apoplexy.

1678. The remote causes of apoplexy have long since been ascertained. High living, inordinate eating, the free use of wine and spirit, an inactive sedentary life, excessive devotion to literary pursuits, great application to business, anxiety of mind, and libidinous excesses, are remote causes of this disease.<sup>1</sup>

1679. These have been shown to be powerful causes of weakened action of the heart, and consequently of accumulation of blood in the venous cavity.

1680. The suppression, or spontaneous ceasing of a customary copious discharge of blood from the hemorrhoidal vessels, the stopping of a hemorrhage from the nose by astringent powders, repulsion or disappearance of eruptions, suddenly interrupted salivation, drying up old ulcers, or checking any kind of habitual evacuation, are also mentioned by various authors of

<sup>1</sup> Morgagni on the Seats and Causes of Diseases, Letter ii, art. 10. Let. iii, art. 6. 14. 16. 26. Let. iv, art. 2. 16. 19. Let. v, art. 11. Cullen's First Lines of the Practice of Physic, MXCV.

credit as having produced apoplexy.<sup>1</sup> All these evidently increase the fulness of the venous cavity (1250, &c.).

1681. We have shown that the symptoms by which the presence of apoplexy is ascertained, viz. deprivation of the external and internal senses, &c. (1677), are effects of accumulation of blood in the venous cavity (1322). But these are not the only symptoms of apoplexy. There are many others which precede the *fit*, such as frequent vertigo, head-ach, drowsiness, confusion of intellect,<sup>2</sup> &c. which have also been shown to be effects of the same cause (1318 to 1321). It would be absurd not to consider these symptoms as part of the general disease. Morgagni states a case of apoplexy, in which the patient was affected, among other symptoms, with propensity to sleep, violent pain in the head, and vertigo. Being relieved from the pain and vertigo, they returned again in three weeks with violence. The patient was again relieved. "But the day following, at the same hour on which the vertigo had seized him, all sense of feeling and power of motion was lost in the left part of his body, and he lay as if overcome with profound sleep."<sup>3</sup>

In another case, a boy of thirteen was seized with a pain over his eyes, his eyes also were painful, and there was a viscid discharge from them. The second day he became delirious, his eyes were fixed on those about him, he vomited a little tough phlegm, then was

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Letter iii, art. 30. Let. iv, art. 7. 13. 30. Cullen's First Lines of the Practice of Physic, MXCV.

<sup>2</sup> Morgagni, &c. Let. i. ii. iii. iv. Cullen's First Lines, &c. MXCVI. Boerhaave's Aphorisms, 1020.

<sup>3</sup> Morgagni, &c. Letter ii, art. 9.

suddenly seized with convulsions ; after which he fell into a lethargy, was frequently roused by convulsions, with difficult respiration, and at length died.<sup>1</sup>

A youth of fifteen, liable to a vertigo, fell suddenly to the earth, all sense and motion being suppressed. An hour after he revived, but the motion of his tongue was somewhat impaired. A few days after he fell into an acute fever, followed by a soporific disorder with slight convulsive motions ; his face was red ; at length he died.<sup>2</sup>

From these cases it is evident that the symptoms preceding the fit are a part of the same disease. The patient has long been exposed to the operation of the remote causes ; various effects appear, red face, pain in the head, vertigo, &c. which gradually increasing, the patient at length falls senseless. It were absurd to consider that state in which he reels and is near falling, and that in which on the very next day, at the same hour, he quite falls, as of a different nature.

1682. All the remote causes of apoplexy tending directly or indirectly in a powerful manner to produce accumulation of blood in the venous cavity (1679. 1680), and the effects observed being effects of this accumulation (1681), it is evident that this is the proximate cause of the symptoms constituting the disease.

1683. This is confirmed by the fact, that when a person has been long exposed to the operation of the remote causes, and it is evident from his gross habit, red face, frequent head-ach, vertigo, &c. that he is in imminent danger of an attack, the application of a

<sup>1</sup> Morgagni, &c. Letter i, art. 2.

<sup>2</sup> Ibid. Letter vi, art. 6.



tight band round the neck, as a tight cravat or stock, or the act of stooping, or of straining, brings it on. These all manifestly produce fulness of the vessels of the head. The symptoms mentioned, head-ach, vertigo, &c. are the well known precursors of a fit of apoplexy, and therefore indicate the presence of the proximate cause in a degree nearly equal to the production of the full effect. The additional fulness produced by the ligature, by stooping, or straining, fills up the measure and the patient falls.

1684. It is confirmed by the state of the persons attacked, at the time of life when they are most liable to suffer, viz. often about sixty years of age and upwards. Venous plethora is universal in such aged persons. They frequently die apoplectic with weak pulse and cool skin.

1685. It is confirmed by the actual existence of this fulness, discovered on examination of the bodies of those who die of this disease.

1686. Morgagni, in the twenty-sixth article of his third letter, states the appearances observed on dissecting a man aged sixty-two years, dead of apoplexy. In cutting through the integuments and upper part of the skull, much blood was discharged. There was none extravasated within the skull, nothing was ruptured, nothing injured; but such a quantity of fluid blood distended all the vessels in and about the brain, that he did not remember to have seen the like before. There was also some water in the lateral ventricles, but in small quantity and almost limpid.

1687. In the tenth article of his sixtieth letter he states the appearances in a woman of forty, dead of

apoplexy. All the vessels within the cranium, not excepting even the plexus choroides, were found turgid with blood; but except a little quantity of water in the lateral ventricles, there was no diseased appearance in any part of the brain.

1688. In the twelfth article of the same letter, he states the appearances in the cranium of a drunken barber who died apoplectic, aged fifty-five years. His words are, "Though I examined all the appearances, and passed over none of those parts that are within the skull without dissection, I not only did not find any extravasation of blood, or serum, *but not the least disorder*, besides that which I shall mention. That is to say, the vessels which pass through the pia mater were so filled with blood, and so dilated thereby, that I never remember to have seen them more so. Those also which make up the plexus choroides, and which are carried through the parietes of the lateral ventricles (where there was a little water), were distended; and on the left side particularly."

1689. Morgagni also mentions in the thirtieth article of his third letter, a case of apoplexy being produced by "a congestion of blood in its veins and arteries, by reason of which the whole brain beneath the pia mater was turgid and livid." It is manifest that these dissections confirm in the strongest manner the inference, that accumulation of blood in the venous cavity is the proximate cause of apoplexy (1682).

1690. Excessive fulness of the vessels of a part, we have seen, tends directly to produce effusion of serum from the minute vessels terminating on its internal surfaces (1360). It is nothing more than an increase

of the natural effusion intended to lubricate the parts, and to prevent them from adhering. This is as necessary in the brain as in any other part; and the effusion observed in its ventricles, &c. is nothing more than the similar effusions observed in other cavities of the body, as in the pericardium.

1691. This serous effusion is sometimes coloured by the mixture of a small quantity of blood, transmitted through the same vessels which ordinarily convey limpid serum: hence the presence of bloody serum in the ventricles of the brain.<sup>1</sup>

1692. It is evident that the same passages which are capable of such dilatation as to admit a bloody serum, are capable of transmitting blood itself, as in other cases of hemorrhage.

1693. Blood extravasated in the brain is known however to proceed sometimes from the plexus choroïdes, or other vessels of the brain being distended to bursting. This very circumstance is however itself an effect of extreme fulness of the vessels. In the following case, which Morgagni calls a violent one, and in which there was an unusual quantity of blood extravasated, the pulse was very weak; and therefore the apoplexy was not the effect of fulness of the arteries; but certainly of the veins.

1694. A husbandman of middle age, and rather fat, was seized in the road with his third apoplectic fit. He was totally insensible, had a stertor in his breathing, his pulse was very small so that they did not dare bleed him, and he died in seven or eight hours.

Black blood was found distending all the vessels of

<sup>1</sup> Morgagni on the Seats and Causes of Diseases. Letter lx, art. 2. 8.

the pia mater; a small quantity was extravasated under this membrane; there was a great quantity in all the ventricles; and a considerable quantity flowed out from the infundibulum.

In the vertebræ of the neck and superior vertebræ of the thorax, the dura mater which lined them was black from stagnating blood; between the pia mater and spinal marrow blood was extravasated, and the pia mater on the posterior part was red with it.

A great portion of this extravasated blood proceeded from the entire destruction of the plexus choroïdes. This must have been the effect of a distending force; we cannot conceive of any thing else that could have produced it. There was no forcible action of the arteries, inasmuch as the pulse was weak. It must therefore necessarily have been the effect of the gradually increasing pressure of fulness of the veins, which finally ruptured this plexus of vessels.<sup>1</sup>

1695. It appears therefore that effusion of blood or of serum is the effect of the fulness of the vessels of the head (1690 to 1694).

1696.<sup>1</sup> Extravasated serum and blood have been considered as the proximate cause of apoplexy. It is evident however from the passages quoted above from Morgagni (1686 to 1689), that extravasation of blood is not necessary to the production of apoplexy. If indeed it were, it must always occur on the first attack; which cannot be, because patients are often relieved so immediately, and so entirely, from the first attack, as to render it doubtful with some whether they had one. Sometimes on straining, stooping, &c. they fall,

<sup>1</sup> Morgagni on the Seats and Causes of Diseases, Letter lx, art. 4. 5.

and recover after a short time without aid ; and in both cases continue, particularly if careful to avoid the different remote causes, free for a long time, sometimes for ever after. In these cases extravasation of blood in the brain cannot have caused the fit ; because blood cannot be so speedily removed, if ever it can ; and the removal of the cause is absolutely necessary to the removal of the effect.

1697. Extravasation of blood in the brain aids nevertheless, when produced, in increasing the symptoms ; as appears from the effect of extravasation resulting from a blow on the head. If blood be extravasated, the symptoms of apoplexy appear ; and very often disappear immediately on giving vent to the confined blood. Extravasation being nevertheless an effect of accumulation of blood in the veins ; the latter exists antecedently to the former, and being capable of producing the symptoms, is the actual cause of them, as well as of the extravasation.

1698. Effused water has much less effect than extravasated blood. There are many instances in which large quantities have been effused within the cranium for a length of time, without the appearance of an apoplectic attack.

Morgagni, in the third article of his fourth letter, mentions from the Sepulchretum, “ the case of a matron who had long been subject to a hemicrania, and who was *at length* taken off by an apoplexy, in whose cranium were found above five medicinal pints of a yellowish and moderately salt water.”

1699. It is evident from a comparison of this (1698) with the preceding cases (1686 to 1689), that the ef-



fusion of so small a quantity of serum as occurred in those cases, could not have been the cause of apoplexy, or this woman would have had it before such a quantity as five pints had collected. He gives other cases of a similar nature; as the following.

1700. "A girl had been *long* troubled with a violent pain in the crown of her head, in whom Borellus saw an abscess full of the most limpid water, to the quantity of two pints, lying upon the nates cerebri and infundibulum."<sup>1</sup>

In another girl, Vesalius found "almost nine pints of water," and asserts that she "enjoyed all her senses perfectly till death, nor were her limbs and joints paralytic, though they were weak indeed and relaxed."<sup>2</sup>

1701. In children with hydrocephalus, sometimes a very large quantity of serum is effused within the cranium, for a length of time, without producing apoplectic symptoms.

1702. Effusion of water in the cranium occurs also when death has been produced by other diseases; as in a woman, who "with a severe pain in the head, was seized with a fury and threw herself headlong into a well," the lateral ventricles were found excessively full of an humour which pressed out with great force;<sup>1</sup> in a man who had long been troubled with a disorder of his head, with pain, but died of "a kind of fever;"<sup>2</sup> in another who had long been troubled with hypochondria and vertigo, and at length was seized with a delirium and sleepiness, "of which disorders in about two days he died;"<sup>3</sup> in a woman, who was seized

<sup>1</sup> Morgagni on the Seats and Causes of Diseases, Letter i, art. 7.

<sup>2</sup> Ibid. Let. iv, art 29. <sup>3</sup> Ibid. Let. i, art. 10. <sup>4</sup> Ibid. Let. vi, art. 2.

with a malignant fever attended with deafness in the beginning, which ended on the seventeenth day in a sleepy disorder, or stupor from which she could not be roused;<sup>1</sup> in a man in an acute fever, who died stupid and restless, throwing the clothes off continually as if he were very hot, though he felt scarce warm and his extremities were cold;<sup>2</sup> in another man in an acute fever, who fell into a stupor on the ninth day and died on the thirteenth.<sup>3</sup> In all these cases serum, unaccompanied by extravasated blood, was found in the cranium.

1703. It is evident from what has been said, that effusion of neither blood nor water is necessary to the production of the effects; and that great accumulation of blood in the vessels of the head is sufficient to effect every symptom observed. As neither effused blood nor serum can be present without excessive fulness of the vessels of the head, and as this fulness is often present without effusion when the symptoms are observed, it is evident that fulness is the indispensable condition, and that effusion is not.

1704. Although it is evident from the preceding observations, that accumulation of blood in the venous cavity produces this disease in all those cases in which the pulse is weak, in which case it is certain that the blood is accumulated in that cavity (1218), yet it may be doubted whether this can be the cause in those cases in which the pulse is strong. Increased action of the heart has been considered the immediate cause in these cases.

<sup>1</sup> Morgagni on the Seats and Causes of Diseases, Letter vi, art. 4.

<sup>2</sup> Ibid. art. 8.

<sup>3</sup> Ibid. Let. iv, art. 6.

1705. In answer to this it may be observed that this disease appears generally at that time of life when there is a marked tendency to venous plethora, and rarely at that time of life when the action of the heart is most powerful. Few cases occur so early as the fortieth, most over the fiftieth, many over the sixtieth year of life.

1706. It occurs also almost only in those persons who have been habitually exposed to the operation of the remote causes ; particularly high living, free drinking, great exertion of mind in deep study, or intense application to momentous affairs, and great anxiety about the result. The inevitable consequence of these is accumulation of blood in the venous cavity.

1707. The time of life, and the manner of life therefore, both concur in indicating the presence of accumulation of blood in that cavity, which is certainly present in all such cases.

1708. The strongest pulse in earlier life does not produce apoplexy. In the most violent fevers I have ever seen, there has been no instance of such an effect ; and the only instance I have heard of from neighbouring practitioners occurred in an old man.

1709. Strong pulse in apoplexy is generally produced by spirituous liquors, a hearty meal of rich food, or by some sudden exertion. But in these very persons, raising the pulse very high in any of these ways does not for many years produce this disease. It does not appear until, by continued indulgence and declining years, accumulation of blood in the venous cavity has been produced. Increased action of the heart therefore does not alone produce apoplexy ; neither

does apoplexy with strong pulse occur until such accumulation has been produced.

1710. The full habit of persons liable to this disease, the time of life when they are attacked, the known effect of the operation of the remote causes, and the weakness of the pulse in many cases, all point to the fact, that accumulation of blood in the venous cavity is the proximate cause. Increased action of the heart without such accumulation does not produce apoplexy; without increased action the latter does produce this disease.

1711. Apoplexies have been divided into serous and sanguineous. The disease being attributed to the effused fluid, and this being sometimes blood and sometimes serum, on this difference was founded the distinction above mentioned. There is however no ground for this distinction, as will plainly appear from the following cases from Morgagni.

1712. In the cranium of a Cardinal who died apoplectic, there was found in the left ventricle of the brain some serum, and in the right more than two ounces of blood.<sup>1</sup>

1713. In an old man who died apoplectic, a very considerable quantity of blood was extravasated in a cavity formed in the medullary substance of the right hemisphere, and "on opening the lateral ventricles, in both of them equally, was seen a very bloody serum, to the quantity, perhaps, of one drachm, occupying only the anterior part."<sup>2</sup>

1714. An old man of seventy died apoplectic in

<sup>1</sup> Morgagni on the Seats and Causes of Diseases, Letter ii, art. 9.

<sup>2</sup> Ibid. Letter lx, art. 2.

twenty-four hours from the attack. "His skull being opened, coagulated blood was found between the right posterior lobe of the brain, and the dura mater; and a kind of concreted serum betwixt the sanguiferous vessels of the pia mater, which being cut through a little serum flowed out."<sup>1</sup>

1715. In a young man who died apoplectic after violent exertion, "the ventricles of the brain contained a great quantity of saltish water: the right and left contained also a portion of condensed blood."<sup>2</sup>

1716. A man about sixty, in the habit of drinking generous wine, who "was frequently used to fall down with a vertigo," at length died apoplectic. "The cranium being sawed through, and the dura mater perforated anteriorly, a limpid water burst from betwixt this and the pia; and the pia mater, which was of a palish colour, contained a gelatinous concretion of serum in the interstices of its vessels. In the lateral ventricles, some of the glands of the plexus choroides were so turgid as to equal the largest lentils in magnitude; and in the right were two grumous concretions of blood."<sup>3</sup>

1717. A short muscular man died apoplectic. In the left hemisphere of the brain there was found "a great cavern full of the most black and half concreted blood." Both the right and left ventricles were filled with "much bloody serum."<sup>4</sup>

1718. A woman of forty much given to drinking died apoplectic. The vessels of the pia mater were so distended with blood, that the larger ones were al-

<sup>1</sup> Morgagni on the Seats and Causes of Diseases, Letter ii, art. 17.

<sup>2</sup> Ibid. art. 20.

<sup>3</sup> Ibid. art. 22.

<sup>4</sup> Ibid. Let. iii, art. 4.



most black. A cavity in the medullary substance of the left hemisphere was full of blood; some blood had also penetrated into the left ventricle, and from thence into the third ventricle. The right ventricle contained some water entirely free from blood.<sup>1</sup>

1719. A boy of fourteen who had been in the habit of drinking spirituous liquors more freely than was proper for any body, and who had been accustomed from the slightest exercise, or from sitting at the fire to have large hemorrhages from the nose, died apoplectic. When the integuments of the head were cut into, "more blood, and that more black and fluid than usual, was discharged;" about two spoonfuls of black and concremented blood were found under the cerebellum, and in the lateral ventricles, and in the third a small quantity of serum.<sup>2</sup>

1729. Thus we see (1712 to 1719) that although there are many cases in which blood or serum alone has been found in the cranium of persons who have died apoplectic, there are many also in which both blood and serum have been found; and sometimes what is a kind of medium between the two, a bloody serum. An instance of the last Morgagni gives from an Italian physician, who says, "In the dissection of Madame Mauvoisin, who died in child-bed apoplectic and epileptic at the same time, I observed that the whole left ventricle of the brain was full of a watery blood,"<sup>3</sup> &c. He states another in the twenty-sixth article of the fourth letter. This cannot therefore form a proper ground of distinction.

<sup>1</sup> Morgagni on the Seats and Causes of Disease, Letter iii, art. 6.

<sup>2</sup> Ibid. art. 24.

<sup>3</sup> Ibid. Let. ii, art. 8.

1721. It was moreover believed that the different kinds could be determined from the appearance of the patient; the sanguineous apoplexy being supposed to occur in young persons, and to be attended by red face and strong pulse; and the serous to occur in older persons, and to be attended by pale face and weak pulse.<sup>1</sup> No dependance can however be placed on this ground of distinction any more than the other: for in both men and women who have died apoplectic at a very advanced age, blood has been found extravasated in the cranium;<sup>2</sup> and many, in whom extravasated blood has been found, had a feeble pulse in the fit; of which a case above mentioned is a striking example (1694).

1722. It appears therefore from every view of the case, that accumulation of blood in the venous cavity is the proximate cause of this disease. Extravasation of blood, or serum, or of other fluids more or less bloody or serous, aids in producing the symptoms; but they are themselves the effects of accumulation (1690, &c.): increased action of the heart aids in producing them, but very often does not occur in apoplectic attacks; and is itself an effect of suddenly increased fulness of the venous cavity, without the existence of which obstructing the passage of the blood through the vessels of the brain (1324), it never produces apoplexy; and therefore accumulation of blood in the venous cavity is properly the proximate cause of this disease.

1723. Habitual fulness of the vessels of the head, from the operation of the remote causes, cannot exist

<sup>1</sup> Morgagni, &c. Letter ii, art. 14.

<sup>2</sup> Ibid. Letter ji, art. 13.

without more or less fulness of other parts of the venous cavity. It is evident on a moment's consideration of the anatomy of the parts, that habitual fulness of the upper part of the cavity cannot exist, and the lower part not be effected by it.

1724. The following statements from Morgagni show the presence both of fulness of the lower branches of the cava, when persons have died of apoplexy or other soporific disorders, and of the effects of that fulness. It is to be observed, however, that the number of cases in which the different cavities, the thorax, abdomen, and cranium have all been opened, is small; even Morgagni having very frequently opened only that cavity which the prominent symptoms indicated as the seat of the disease. There are however some cases in which the state of the different cavities is given.

1725. A man of forty troubled with violent pains in his head almost constantly, with a discharge from the eyes, had been liable for many years to a periodical pain in the right hypochondrium, often attended with vomiting, sometimes degenerating into iliac passion, with delirium.

On one occasion, after drinking wine too freely he was attacked with his usual pain and vomiting. By an application to the abdomen, this was relieved; but he was immediately seized with vehement heat in his head, internally as well as externally. The same application being made to his head, he was attacked with the most violent pain in the head, with delirium and convulsions; which ceasing about an hour before his death, he became apoplectic, with difficult respiration, foaming at the mouth; and died.

There was some serum found between the pia mater and brain, the liver was hard, and there was a small quantity of serum in the abdomen. No mention of appearances in the thorax.<sup>1</sup>

In the second case stated in 1681, there was water in the cranium, and also in the pericardium.

1726. Rammazini had been troubled with violent palpitation of his heart; it was followed by violent hemicrania; last of all a blindness, first of one eye and then of the other, came on after the palpitation and hemicrania had left him, and continued till his life was ended by an apoplectic fit. His body was not opened.<sup>2</sup>

1727. A man of sixty-two, extremely plethoric, after eating a hearty supper went to bed, and died in a short time apoplectic. In cutting through the integuments and upper part of the skull, much blood was discharged. None was extravasated within the cranium, but the vessels in and about the brain were extraordinarily distended. There was a small quantity of limpid water in the lateral ventricles. The heart was large, and its proper vessels and auricles turgid with blood, black and grumous. In the pericardium was some bloody water, but not much.<sup>3</sup>

1728. A fat man of middle age died suddenly. The internal jugular veins were much distended with blood. The vessels of the cerebrum and cerebellum, which ran on the surface, and those also which lie on the corpus callosum, were more turgid than usual. Serum was met with under the pia mater, and a pretty large quantity in the ventricles, and some flowed out from the tube of the vertebræ.

<sup>1</sup> Morgagni, &c. Let. i, art. 4.    <sup>2</sup> Ibid. Let. iii, art. 8.    <sup>3</sup> Ibid. art. 26.

The membranes which enveloped the parotid gland and the neighbouring parts, but especially the adipose membrane, were turgid with serum which had stagnated therein; and the blood stagnating, and, as it seemed, almost extravasated, had stained the back part of the pharynx and other internal parts of the neck. The membranes which cover the root of the tongue, the tonsils, and all the external surface of the pharynx, were very turgid with a tough yellowish serum.

In the pericardium was a moderate quantity of somewhat bloody serum.

The spleen was bigger and softer than it ought to be; and a small part of the small intestines was livid and variegated.<sup>1</sup>

1729. A man of forty, affected with violent perturbations of mind from a grievous misfortune, was seized with a fever, which after some days seemed to remit; the pulse was soft and irregular from the beginning, and became more so. At the end of a fortnight he complained of nothing but thirst, but added that his head seemed heavy; in half an hour after, while drinking some water, his upper lip being drawn up, he suddenly died.

In the brain there was every where a moisture; the lateral ventricles contained a little bloody water. In the posterior part of the plexus choroides on each side were vesicles turgid with a pellucid fluid.

In the thorax on each side was some bloody water; and also in the pericardium.

In the abdomen there was a little more moisture than common. The spleen was large and flaccid.

<sup>1</sup> Morgagni, &c. Letter iv, art. 24.



The external coats of the jejunum were sprinkled here and there with some red and almost livid spots.<sup>1</sup>

1730. A woman of sixty, who had been confined to her bed for many years by a contraction of the muscles that moved the lower limbs, having eaten rather more than she was used to do, gave a sudden turn to her eyes, and immediately expired.

A small quantity of water was found in the cranium, thorax, and abdomen; and nothing else that appeared morbid.<sup>2</sup>

1731. A rustic more than sixty years of age had for a long time had ulcers on his legs; he had not a passage in six days without taking means to procure one. A surgeon having been applied to on account of the ulcers, made such applications to them as to put them in a healing way; but the cicatrix was not completed when he began suddenly to complain of a very great weakness in his head; his pulse was very small and languid; but the next day became stronger. On the third day he was delirious and began to lose the sense of feeling in his whole body; which increasing and a stertor coming on, he died.

On opening the skull a thin fluid was found betwixt the two meninges, and in like manner between the pia mater and brain; and water flowed out of the vertebral tube.

In the cavity of the thorax and abdomen a little water was contained. The spleen was very large, and was covered with large oblong spots of a black colour; internally its appearance was not bad.

In the loins, at the sides of the spine, water was contained in the cellular membrane instead of fat.<sup>3</sup>

<sup>1</sup> Morgagni, &c. Let. iv, art. 26. <sup>2</sup> Ibid. art. 28. <sup>3</sup> Ibid. art. 30.

1732. A woman aged fifty-five years, of a florid countenance, large stature and full habit, was subject to violent colic pains; and had been in the habit of drinking wine undiluted, "and that not sparingly." She became at length slothful, dull, and inclined to sleep, had a pain in her head, and for some days before her death heard a very troublesome noise of which she often complained. Being taken ill in the night she had a pain in her right temple and eye, and while sitting in a chair fell and died apoplectic, vomiting at the same time. The motion of her right hand was not lost until an hour after she fell.

The vessels of the pia mater were found more turgid than usual; blood was extravasated beneath the dura mater, and covered the whole right hemisphere, and lay under the basis of the brain. This blood issued through two or three foramina in the pia mater where it covered the right hemisphere, from a cavity in the medullary part of that hemisphere; blood was also contained in the ventricles, and in the spinal tube.

Bloody water was found in the pericardium, bloody drops on the surface of the spleen, and a kind of bloody bile in the gall-bladder<sup>1</sup> (1637).

1733. A man extremely plethoric, aged sixty-two years, died apoplectic. In cutting through the integuments, and while the upper part of the skull was sawed through, much blood was discharged; none was extravasated within the skull; an extraordinary quantity of blood distended all the vessels in and about the brain, so that Morgagni did not remember to have seen the like before. There was also a small quantity of limpid water in the lateral ventricles of the brain.

<sup>1</sup> Morgagni on the Seats and Causes of Diseases, Letter iii, art. 2.

The heart was large and its proper vessels and auricles were turgid with blood, black and grumous. There was some bloody water in the pericardium.

No mention is made of the appearances in the abdomen.<sup>1</sup>

1734. A man who was in the habit of drinking too much died apoplectic.

On dissection, all the vessels of the brain, even the smallest internal vessels, were turgid with blood, and, in the sinuses, concretions of blood. Much water ran out of the vertebral tube when the head was cut off; and the same was found in great quantities under the pia mater; in the lateral ventricles also was a little water. A kind of sanies extended over all the surface of the anterior lobes of the cerebrum.

In the left cavity of the thorax was a little bloody water. The abdominal viscera were all sound.

1735. Morgagni mentions an old man of seventy, who had been very voracious in his diet, who had an apoplexy, and afterwards a palsy of the right side, and convulsions of the left; his senses were also affected; he sometimes discharged calculi with his urine; and the spleen was twice as large as it ought to have been, and of a very dark colour. There was some serum between the dura and pia mater. The thorax was not opened.<sup>2</sup>

1736. A young woman, who had been in the habit of eating inordinately, and was very gross and plethoric, after an hearty dinner died apoplectic. In presence of a number of physicians and students of this place I opened the body.

<sup>1</sup> Morgagni, &c. Letter iii, art. 26.      <sup>2</sup> Ibid. Letter xi, art. 6.

Blood had flowed from her ears, showing extreme fulness of the external jugular branch of the venous cavity. Having commenced with the abdomen and thorax, and very minutely examined them, the head was not opened in consequence of extreme fatigue and the short time allowed by the family ; but the extreme fulness of the vessels of the internal jugular was evinced by the full round appearance of the veins in the neck, and by the discharge of an enormous quantity of blood which gushed out on making an accidental incision into the subclavian.

The right side of the heart was excessively distended with black blood. The subclavian veins, the cava, and the external iliac veins, were very full and quite round. The contrast between the latter and the corresponding arteries was very striking : while the veins were large, round, and full, the arteries were entirely empty, and so contracted as to require the aid of a probe to show the cavity, after having been cut across.

The pericardium was distended with a large quantity of water, and there was a considerable quantity in the peritoneal cavity.

1737. The presence of these various symptoms, effects of excessive fulness of other parts of the venous cavity, in apoplectic cases (1723 to 1736), confirms the doctrine that accumulation of blood in the venous cavity is the proximate cause of apoplexy.

1738. The same is also evinced by the removal of all the symptoms of the disease, by spontaneous or by artificial evacuations from that cavity.

1739. Many cases on record plainly show the truth

of the former. Morgagni relates a case from Lancisi of a merchant who was severely afflicted with symptoms of approaching apoplexy, but had them greatly alleviated by the discharge of eleven pounds of blood from the nose; and entirely cured by the discharge of four more a few days after.<sup>1</sup>

1740. Boerhaave tells us that "a gentle apoplexy goes off with the coming on of sweats, which relieve by their great quantity, continuance in an equal degree, spreading equally like dew and heat; with a large quantity of thick urine; with large bleeding from the piles for a long while; with the fluor of the menstrua being restored; a looseness and a high fever."<sup>2</sup>

1741. It is evident that every one of these evacuations by which an apoplexy is cured without the interposition of art, tends to relieve or take off the fulness of the interior veins. A large quantity of thick urine, a large bleeding from the piles for a long while, restored discharges of the catamenia, all evacuate directly from different parts of the venous cavity. A very great and *continued* sweat relieves in consequence of a great flow of blood to the surface, so as even to overflow abundantly, and for a considerable time; which indicates the very reverse of accumulation of blood in the interior veins. In a looseness of the bowels accompanied by a high fever, there is not only an evacuation from the cavity, but a flow of blood from the interior to the surface; in two ways taking off fulness of the venous cavity.

1742. Artificial evacuations from the same cavity are the main or only dependance for relief in every grade of this disease.

<sup>1</sup> Morgagni, &c. Letter ii, art. 14. <sup>2</sup> Boerhaave's Aphorisms, 1017.



*Method of Cure.*

1743. In treating this disease medical writers have made a distinction between that practice which is proper in sanguineous, and that which is so in serous apoplexy. We have shown that it is impossible to distinguish between the apoplexy with extravasated blood, and that with effused serum: moreover, the distinction is useless, because patients with the former often have weak pulse, and others with the latter, a strong pulse. If then we are guided by the strength or weakness of the pulse in taking blood or not, we must sometimes take blood when there is serum in the cranium, and at others abstain when there is blood inundating the brain.

1744. Considering all the affections which precede apoplexy, viz. head-ach, vertigo, dim vision, and every grade of coma (1318 to 1323), as the same affection with that in which the patient's sleep is so profound that he cannot be awaked (1677), we shall consider the mode of cure in the early stages, and the treatment when the disease has arisen to its acme.

1745. In the earlier as well as the later stages, bleeding is certainly proper whenever the pulse will bear it, and as long as it will bear it. The pulse is however often weak, and then bleeding, particularly from the arm, renders it weaker, and increases of course the internal fulness (1218).

1746. Whether the pulse be strong or weak, a continued laxative state of the bowels, such as is produced by the medicines before mentioned (1579, &c.), is effectual in removing the symptoms. The discharges should

be three, four, or five, in twenty-four hours, free, loose, but not thin and watery.

1747. The diet should be good but not rich: some reference may be had in this to previous habits. It ought to be such as will invite the patient to eat enough to feel well; but not enough to produce flushing. He ought to regulate his diet so as to avoid that. There should be no fermented spirit used. The medicine, besides evacuating, is considerably stimulant, and prevents the paleness frequently observed from reduced diet.

1748. In the fit the treatment depends on the pulse. If the pulse is strong and hard, very free bleeding is the main dependance; if it be weak, bleeding may immediately put an end to the patient's life.

1749. If the pulse be strong, blood should be drawn until it be reduced. We ought to take advantage of the opportunity to withdraw from the interior vessels as much blood as we can safely; and until the action of the heart begin to lessen, the blood drawn must be supplied from the venous cavity.

1750. The only reason for not bleeding largely is fear of the consequence of taking a quantity of blood we have not been accustomed to see drawn. This fear should be restrained by the consideration of what has been done. Dr. Physick took from a physician in Philadelphia ninety ounces at once. Rush mentions from Haller a number of instances in which many pounds of blood were lost at once without injuring the patient.<sup>1</sup> I have taken from a man in apoplexy a large chamber-pot half full of blood with stri-

<sup>1</sup> Rush's Works, Vol. 4, p. 206.

king benefit; and in a woman in puerperal enteritis sixty-four ounces at once, without producing fainting or any inconvenience, but vast relief.

1751. If there be any doubt however of the propriety of bleeding, the patient may with more safety be bled in the jugular vein than in the arm. An incision in this vein opens directly into the venous cavity, and therefore bleeding from it directly reduces the fulness of the cavity, at the same time that it does not weaken the action of the heart near so readily as bleeding from the arm.

Cullen was of opinion that bleeding from the jugular is most effectual.<sup>1</sup> Boerhaave was of the same opinion.<sup>2</sup>

1752. I have strong reason for believing it from the effect in a case already related (1645). That old woman after having been bled in the jugular, while the pulse at the wrist was very weak, revived to the surprise of every one, and continued in better health than common for several days, getting out of bed without help, which she had not done for a long time, and died suddenly in another fit produced by an inordinate meal. It is therefore safe and proper, though the pulse be weak, to bleed in the jugular vein.

1753. Purging in the way stated (1579, &c.), is also proper and necessary; and if the patient cannot swallow medicine, cathartic injections ought to be given repeatedly, until there be a free discharge from the bowels. The patient above mentioned was freely purged after she had revived and was able to swallow.

<sup>1</sup> Cullen's First Lines, &c. MCXXXII.

<sup>2</sup> Boerhaave's Aphorisms, 1030.

1754. Emetics and stimulants have been recommended in apoplectic attacks; and there have been disputes respecting the propriety of using them.

I have never used either. They might very possibly be of service in apoplexies with weak pulse, which are more frequent, as far as my experience goes, than those with strong pulse.

## CHAPTER XXIII.

### OF EPILEPSY.

1755. Cullen in his Nosology defines epilepsy thus, musculorum convulsio cum sopore; a convulsion of the muscles with sleep, or an appearance of sleep.

1756. The remote causes of this disease are (according to Cullen), violent emotions of the mind; as joy, anger,<sup>1</sup> horror,<sup>2</sup> violent exercise, a surfeit, a fit of intoxication,<sup>3</sup> hemorrhage, spontaneous or artificial,<sup>4</sup> narcotic poisons.<sup>5</sup> Parr also mentions the acrid matter of eruptions repelled, as a cause. Boerhaave mentions drunkenness, gluttony, immoderate venery, an acute and deep judgment; profound meditation, "the stoppage of some matter used to have its free course, whether sanious blood, pus; the menses and cleansings in women; the piles or urine in both sexes, but chiefly the former in men."<sup>6</sup> Darwin mentions hard drinking and cold as remote causes.<sup>7</sup> A man, a patient of mine, had one fit after drinking and riding home a considerable distance in a sleigh: a considerable time afterwards, walking out in a very cold morning without his coat and shoes, he fell on the frozen ground and was very violently convulsed. The convulsions were afterwards brought on more than once by fa-

<sup>1</sup> Cullen's First Lines, &c. MCCXCI. <sup>2</sup> Ibid. MCCXCII. MCCCIII.

<sup>3</sup> Ibid. MCCXCV. <sup>4</sup> Ibid. MCCCII. <sup>5</sup> Ibid. MCCCIV.

<sup>6</sup> Boerhaave's Aphor. 1075. <sup>7</sup> Darwin's Zoonomia, 3. 1. 1. 7.



lague in harvesting, which is very excessive in this country.

1757. To these may be added miasmata. Bruce, in his travels in Abyssinia, mentions, that in the town of Sennaar on the upper Nile, as soon as the vegetation, which abounds in the ponds, &c. about the town, begins to rot in the fall of the year, fevers, apoplexies, and epilepsies become epidemic. We often see in the fall of the year convulsions among the precursory symptoms of a fever. Cullen mentions in his *Nosology* an epileptic tertian, and an epileptic quotidian as described by authors. Morgagni mentions a young man who lived in marshy grounds, and whose business was to cut the weeds which grew there for the use of the coopers, who fell into a dropsy, which being somewhat abated, he fell into repeated convulsions, silliness, and stupor, and died.<sup>1</sup>

1758. All these remote causes produce directly or indirectly weakened action of the heart, and consequently accumulation of blood in the venous cavity. The proof of the presence of this state is seen in the pale countenance of persons subject to epilepsy, and in the presence of other effects of the same accumulation.

1759. The convulsion itself is an effect of this fullness of blood (1487); but there are many other effects of the same.

Motherby, and Parr after him, mentions as diagnostic signs of the disease an oppressive pain in the head,<sup>2</sup> interrupted sleep, languid pulse, a pale countenance.

<sup>1</sup> Morgagni, &c. Letter ix, art. 9.

<sup>2</sup> Motherby's Dictionary; also Morgagni, &c. Let. ix, art. 25.

stupor and drowsiness, a ringing in the ears, palpitation of the heart, fulness of the præcordia, disturbed respiration, a discharge of fœtid stools, and a copious discharge of urine.

Cullen mentions calculi in the kidneys, and acidity in the alimentary canal, as occurring before the fit. He speaks of these as causes. Parr also mentions gout as a cause: he says repelled gout, and also “sometimes *the deficiency of constitutional strength* which prevents its formation, has had the same effect,” of producing epilepsy. The symptoms constituting these affections, particularly the latter, are dyspeptic symptoms, and such as are commonly connected with them.<sup>1</sup>

Morgagni also speaks of epilepsy arising from the viscera of the abdomen being diseased.<sup>2</sup> He also mentions a case in which dropsy preceded epileptic fits (1757).

Darwin also mentions epilepsy preceded by dyspeptic symptoms. All these patients he thinks had weak pulse, and pale cold skin.

It is evident from these quotations that all these symptoms precede epilepsy.

1760. In the cases which have occurred in my practice, the patients have been pale or sallow, the liver has been disorderèd, the discharges green or dark. One of them, besides these symptoms, was frequently disturbed in sleep and started up, and was after sitting up affected with stupor. Another had palpitation and pain in the head.

In another case the patient had the following symptoms; pain in the right side, costiveness, indifferent appetite, flatulence, weak pulse, cool skin and extre-

<sup>1</sup> Cullen's First Lines, &c. MCCXCVIII. <sup>2</sup> Morgagni, Let. ix, art. 7.

mities, vertigo, passages very dark, and dull pain in the epigastrium.

Another, who had had frequent convulsions, complained of "his misery beginning in his head and breast," sometimes his legs and feet were stiff and cold, he became delirious, raving, and finally speechless. I found him sensible, but like a dumb person making efforts to speak; one eye was a little turned inwards; on asking if he felt pain, he pointed to his head; on touching the top of his head, he complained of soreness; the pit of his stomach was very tender on pressure; the discharges from a mercurial cathartic his mother had given him were blackish.

1761. All these symptoms (1759. 1760) are effects of accumulation of blood in the venous cavity, as has been shown already (chapter xix).

1762. Dissections indicate the presence of the same fulness. "An old man of sixty years of age, being subject to epileptic fits, was seized with a fever. This was suddenly followed by an epilepsy of which he died. Between the dura and pia mater, besides a quantity of serum every where effused, a portion of extravasated blood was also found on the side: the ventricles were also filled with serum, and in them the plexus choroides had their turgid glandules."<sup>1</sup>

1763. In the next article<sup>2</sup> Morgagni mentions several instances from other authors in which a considerable, and in one instance a large quantity of serum was found in the cranium extravasated.

1764. "A young man of eighteen years of age, having lived in marshy grounds, where his business was

<sup>1</sup> Morgagni, &c. Letter ix, art. 2.

<sup>2</sup> Ibid. Letter ix, art. 3.

to cut down the weeds, with which the coopers stop up the chinks of their vessels, fell, naturally, from his manner of life, into a dropsy, and that a general one. When he was brought into the hospital at Padua, having taken some diuretics, his swelling was somewhat abated; but then he began to be seized with an epilepsy, with which he had never been troubled before." After a number of fits, joined with silliness, and a propensity to sleep, he died.<sup>1</sup>

His head it appears<sup>2</sup> was severed from the body and carried to Morgagni to be dissected. There was therefore but little blood in the vessels of the brain, except in the lateral sinuses which contained black blood. There was some water in the lateral ventricles; but there can be but little doubt that serous fluid escaped through the tube of the vertebræ when the head was cut off, as Morgagni suggests.<sup>2</sup> The face was very tumid with water in the cellular membrane.

1765. A man subject to disorders of the urinary passages fell into a fever, and about the twelfth day died epileptic.

One of the kidneys contained calculi and was twice as large as it naturally should be. The heart and great vessels were turgid with a very black and fluid blood. "In the head all the small vessels whatever that creep on the surface of the brain, were very red and turgid; and in the ventricles of the cerebrum was a little quantity of water, and that limpid like lymph."<sup>3</sup>

1766. A porter having been unusually fatigued in

<sup>1</sup> Morgagni on the Seats and Causes of Disease, Letter ix, art. 9.

<sup>2</sup> Ibid. art. 10.

<sup>3</sup> Ibid. art. 12.

August, and having also eaten very heartily, fell into an epilepsy, with which he had never before been troubled, and died in a few days. "The head, which was the only part dissected, had nothing at all in it worthy of attention, if you except *the turgency of the vessels of the cerebrum.*"<sup>1</sup>

Morgagni also mentions from the Sepulchretum, cases of epilepsy in which after death the vessels of the brain were found tense and turgid, and extravasated blood also in the cavity of the cranium.<sup>2</sup>

1767. A man of thirty-five years, of a slender habit, being seized with a pain in the head with a sense of weight, "fell into a flux of blood from the nostrils, which, after having been discharged in great quantity, ceased of itself to flow any longer." After this he was deprived of the faculty of smelling, and then seized with epileptic fits, which were frequent for two years, when he died.

The skull being opened a small quantity of blood was found extravasated.<sup>3</sup>

1768. An old man subject to epilepsy finally died, shortly after a paroxysm. Extravasated blood and serum, both in moderate quantity, were found in the cranium;<sup>4</sup> and serum in the right side of the thorax.

1769. Thus it appears that the remote causes of epilepsy are such as produce accumulation of blood in the venous cavity; that marks of this fulness are present; that other effects of fulness accompany or precede the convulsions; that dissections show the actual existence of fulness; and we shall see that reducing this fulness is the best mode of moderating or

<sup>1</sup> Morgagni on the Seats and Causes of Diseases, Letter ix, art. 14.

<sup>2</sup> Ibid. art. 13.

<sup>3</sup> Ibid. art. 25.

<sup>4</sup> Ibid. Let. li, art. 6.



removing the convulsions, as well as the other effects of fulness of the venous cavity.

1770. Convulsions are said to be produced in some instances by malconformation of the skull, whereby the cavity is narrowed; and by tumours obstructing the return of the blood from the head.

1771. It is evident that these are not alone the causes of the convulsions that arise in such circumstances, because they are always present, and the convulsions are only occasional. It is evident that there must be some occasional state, which must at least concur in the production of the convulsions.

1772. The effect of tumours is to produce unusual fulness of the vessels of the head, that of malconformation to give greater effect to an occasional accumulation of blood in those vessels. It is evident, therefore, that in either state, the occasional accumulation proceeding from exposure to the remote causes, must more readily produce convulsions, than in those cases in which such tumours or malconformation do not exist.

1773. Spontaneous discharges from the venous cavity sometimes cure convulsions.

The eruption of the menses is spoken of by Motherby as a natural solution of the disease. The first confinement is likewise. The cure is evidently produced by the large discharges from the venous cavity occurring at those times. Artificial evacuations from the same cavity have the same effect.

*Method of Cure.*

1774. In the treatment of this disease we must not consider it as consisting of the convulsions alone ; but likewise of all the symptoms which precede them. When the convulsions occur they require immediate attention ; but efforts must be made in the intervals likewise, if we would cure the patient.

1775. We must therefore consider the treatment in the fit, and in the intervals.

1776. In the fit the main dependance is on bleeding if the pulse be strong ; and this is almost uniformly the case. With regard to the extent of bleeding we should be governed by the same views as in cases of apoplexy (1748 to 1752). The pulse is however sometimes weak, and bleeding in such cases is hazardous. If it reduce the pulse it must certainly be injurious. Bleeding in the jugular might be tried ; but great attention should be paid to the pulse while the blood is running (1617).

1777. Sometimes a very extraordinary quantity of blood may be taken without reducing the pulse. In the case alluded to in 1651, there was no possibility of controlling the patient : the pulse was excessively large, as well as the veins ; his arm was tied with a silk handkerchief, the blood flew with great violence from the orifice, and it was suffered to run until his efforts gradually moderated, he opened his eyes, and looked around and began to speak. The quantity of blood taken could not even be estimated ; there appeared to be more than I ever saw drawn in the same time.

1778. In the few instances in which the pulse was weak, and the patient was bled, the operation certainly did no good. In one instance, the patient sunk into a comatose state, and gradually recovered: in another, death followed in a few hours; whether hastened by the bleeding or not, could not be well ascertained.

1779. Besides the bleeding, it is proper to attempt giving a cathartic. Calomel is most proper on every account. It is small in bulk, weighty, and therefore cannot easily be rejected, but on the contrary will by the mere agitation make its way down the throat, if the patient lie on his back. It is slow but very sure; the dose should be large.

1780. Injections should also be used if the agitations will admit: they hasten the operation of medicine given to patients suddenly taken, and therefore with their bowels full. Any stimulant injection may have a good effect. I have found sixty or eighty grains of jalap in a moderate quantity of water, a very useful injection. It may be repeated every hour or two.

I have given emetics in convulsions with weak pulse with benefit.

1781. The interval between the fits is the time when strenuous efforts should be made to cure the disease.

1782. If the pulse be strong the patient should be bled. This however is rarely the case, except an occasional increase of the action of the heart arising out of occasional exposure to the remote causes.

1783. If the pulse be weak it is dangerous to bleed. In the autumn of 1823, a lady of a dark bilious com-

plexion having been indisposed for a day or two with nausea, &c. rode out, and fell into convulsions in her carriage. A physician was called, who bled her freely, and gave her an emetic, which relieved her very much: she recovered her recollection and next morning returned to town, and desired my attendance. She was very desirous of being bled again; but as the pulse, although full and large, was remarkably soft and compressible, this was declined under the apprehension of so reducing the action of the heart as to produce accumulation of blood in the cava, and convulsions. She took mercurial cathartic medicines (1579, &c.), the discharges from the bowels were very black, and she was daily improving. She persisted however every day in requiring to be bled, until on the fourth day, every thing being pretty much in the situation above stated, the passages being still black, at a moment when the conviction of the possible consequences was weaker than usual, I bled her. The pulse continued for some time unaffected; but at length very suddenly began to fall, the patient put her hand to her forehead, exclaiming, "my God, what a pain!" and before the ligature could be taken off she fell into strong convulsions.

1784. Whether the pulse be weak or strong, purging in the mode already stated is necessary; and if the pulse be weak it is the principal dependance. It is unnecessary to be more particular here as the subject has been already fully discussed (1565, &c.).

1785. A man of a pale complexion complained of being startled out of his sleep in the night; of a sense of oppression while asleep; when roused up he was

scarcely conscious for some time, and was sometimes convulsed. His pulse was very moderate. I therefore advised no bleeding; but prescribed mercurial cathartics. He took jalap and calomel for some time, which discharged dark and green matter from his bowels, and he perfectly recovered.

1786. A boy ten or twelve years of age, at the commencement of an autumnal epidemic was seized with violent convulsions. He had no fever. He took a number of doses of jalap and calomel; in all a drachm of the former and half a drachm of the latter in one day, before there was any operation. Towards evening he discharged an immense quantity of fluid black matter and was perfectly relieved, and has never had a return of the disease.

1787. A man who had had for some years epileptic fits and convulsive motions of one leg in the intervals, with heart-burn, palpitation, and some pain in the head, having tried a great variety of medicines without any relief, was advised to use the cathartic pills (1579, &c.) in sufficient quantity to produce a free evacuation every day. He complied, in an irregular manner however, with the advice, and was essentially benefited by the course.

1788. A boy of about ten years had had epileptic fits for about three weeks, every day or two: he had had as many as twenty fits in one evening. He was bled until he fainted and vomited. He took active mercurial cathartics, jalap and calomel, &c. until they operated well every day, discharging dark green matter for some days. He entirely recovered and has not had one fit since.



1789. Tonics have often been employed to prevent the return of convulsions. They however often fail, although they sometimes cure. These act in two ways; they sustain the action of the heart and thus prevent accumulation of blood in the venous cavity; and they also act on the bowels. I have often known them to act in the latter way; and in cases in which bark, the nitrate of silver, and the sulphate of iron, have been given as tonics in different diseases, and relieved or cured the patient, they acted as cathartics. Some of these cases shall be stated hereafter.

1790. There can be but little doubt that emetics given occasionally to epileptic patients, would be serviceable. They have been recommended by authors, but I have not made much use of them, having met with but very few of these cases of late years.



## OF CHOREA.

1791. The only patient I have ever had in this disease was a thin delicate girl with a dark complexion, a weak pulse, and fulness and tenderness of the epigastrium. She had pain in the head, back, and right side; fulness of the head, buzzing noise in the head, and sleepiness; a palpitation and choking, or fulness at the top of the breast bone; the urine was dark; the monthly discharges regular, but pale.

1792. The convulsive motions affected her limbs, particularly her arms; but were, at the time I first saw her, confined pretty much to the muscles of the forearm, and the jaws. The thumb was sometimes forci-

bly drawn to the palm of the hand: the thumb and fingers were at other times affected with irregular convulsive motions. The masseter muscles were frequently contracted so strongly as to keep the teeth fast closed, and the muscles themselves felt hard. They were constantly in motion, contracting and relaxing, but not so much as to suffer the teeth to be separated. The contractions were so strong as to give pain.

1793. These symptoms, particularly those first mentioned (1791), are evidently effects of accumulation of blood in the venous cavity.

1794. The effect of evacuations from the liver confirms it. She took immediately, and every day for a considerable time, and afterwards every other day, different cathartic pills (1579, &c.), which operated as desired, bringing away dark and green passages. She was bled once or twice.

She took in the first month one hundred and eight pills, and in the next five months one hundred and eighty. She was entirely cured; there was no convulsion for a considerable time before she stopped taking medicine; which was continued in order to remove the other effects of fulness (1791). This was done, and she became quite fleshy and acquired a healthy complexion. She has not had more than one attack since, a period of near two years. That one occurred during the severe epidemic of 1826.

## CHAPTER XXIV.

### OF DYSPEPSIA.

1795. Cullen in his *Nosology* defines this disease in the following terms. “Anorexia, nausea, vomitus, inflatio, ructus, ruminatio, cardialgia, gastrodynia, pauciora saltum vel plura horum simul concurrentia, plerumque cum alvo adstricta, et sine alio, vel ventriculi ipsius, vel aliarum partium, morbo.”<sup>1</sup>

1796. In his *First Lines of the Practice of Physic*, he gives as a description of this disease nearly a literal translation of this nosological definition. “A want of appetite, a squeamishness, sometimes a vomiting, sudden and transient distensions of the stomach, eructations of various kinds, heart-burns, pains in the region of the stomach, and a bound belly, are symptoms which frequently concur in the same person, and therefore may be presumed to depend upon one and the same proximate cause.”<sup>2</sup>

1797. Cullen states that the remote causes of dyspepsia are those which act immediately on the stomach, and those which act on the whole body.

Of the first are,

1. Certain sedative or narcotic substances taken into the stomach; such as tea, coffee, tobacco, ardent spirits, opium, bitters, aromatics, putrids and acescents.

<sup>1</sup> Cullen *Synopsis Nosologiæ*, Tom. ii, p. 201.

<sup>2</sup> Cullen's *First Lines*, &c. MCXC.

2. The large and frequent drinking of warm water, or of warm watery liquids.

3. Frequent surfeits, or immoderate repletion of the stomach.

4. Frequent vomiting, whether spontaneously arising, or excited by art.

5. Very frequent spitting, or rejection of saliva.

Of the second kind are,

An indolent and sedentary life; vexation of mind, and disorderly passions of any kind; intense study, or close application to business too long continued; excess in venery; frequent intoxication; being much exposed to moist and cold air when without exercise.<sup>1</sup>

1798. Eructations of wind, &c. on taking in putrids and acéscents, is not a proof of disease. It may appear in the soundest stomachs. A person remarkably free from dyspeptic symptoms, though in the habit of eating freely all kinds of diet, never having experienced eructation, acidity, &c. more than once or twice in his life, on eating very heartily of cashaw (a kind of pumpkin), experienced an hour or two afterwards, the sensation produced by acid in the stomach. This has occurred several times. The acidity, &c. were produced by the quantity being greater than the gastric juice of a very sound stomach could control. When therefore eructations occur after taking in such diet, the stomach not being diseased the diet is not a cause of disease; and these articles of diet ought not to be enumerated among the causes of disease.

The appearance of the same symptoms in consequence of spitting away the saliva is no proof. By

<sup>1</sup> Cullen's First Lines, &c. MCXCVIII.

the absence of that fluid, which is provided to dilute the gastric juice and make it sufficient in quantity to be applied to the whole contents of the stomach, a part of the latter is untouched by it, and of course runs into fermentation.

The warm watery liquids mentioned, include, it is supposed, the various herb-teas, all of which are more or less stimulant. The distinction of the remote causes into those which act immediately on the stomach, and those which act on the whole body is unnecessary. Sedatives or narcotics, vomiting, immoderate meals, though applied immediately to the stomach, evidently operate or act on the whole body, as well as the other causes afterwards mentioned.

1799. To the causes mentioned must be added miasmata on the best authority, that of frequent observation. It frequently happens during an epidemic fever, that numbers complain more or less of the identical symptoms enumerated in Cullen's definition above recited, viz. want of appetite, nausea, vomiting, inflation of the stomach, eructations, rumination, or the rising of what has been eaten into the mouth, heart-burn, pain in the stomach, costiveness. In many, febrile action comes on; in others, these symptoms continue lingering about them during the whole season, and sometimes they remain with them for years. In those cases in which fever supervenes, the same symptoms sometimes continue throughout the disease; and sometimes after the fever goes off, it leaves the patient as it found him, labouring under the same symptoms of disordered stomach. Of these several cases I have often known instances; and it cannot fail that



the same will occur to every observant physician, if he direct his attention to this subject. Indeed, as miasmata operate more extensively than any other remote cause of disease, a very great proportion of the cases which have occurred to me have been produced by this cause, as may be observed when the cases are stated.

1800. These remote causes. (chap. ii. vii.), we have heretofore shown, produce weakened action of the heart, and the actual presence of this effect of these causes is indicated by the paleness and weak pulse of dyspeptics.

1801. The action of the heart, although weakened by the operation of the remote causes, does not always continue in a weak state during the whole course of the disease. As weakened action is often followed by increased action of various grades, sometimes it rises to a natural state or a little higher, fluctuating between the latter and a low state; whence arise flushings of the face, hot palms, &c. (1530).

1802. We have seen that weakened action of the heart is inevitably followed by an accumulation of blood in the venous cavity (1218), and that paleness and weak pulse indicate the latter with as much certainty as they do the former (1219). One of the remote causes mentioned by Cullen, immoderate repletion, tends directly to an extra fulness of the vessels, which must necessarily centre in the venous cavity.

1803. We have seen that all the symptoms enumerated by Cullen as diagnostic marks of dyspepsia, are effects of accumulation of blood in the venous cavity; viz. anorexia, nausea, vomiting, inflation, eructation, rumination, heart-burn, pain in the stomach. and costiveness (1426. 1443. 1448. 1488 note).

1804. We have thus shown that the symptoms constituting dyspepsia are produced by the known remote causes of that disease, operating through the medium of the chain of causes, weakened action of the heart, and accumulation of blood in the venous cavity; and that the latter is the proximate cause of the disease.

1805. As this cause must from its nature produce effects on other parts of the venous cavity, dyspepsia is accompanied by morbid affections of other parts of that cavity.

1806. This shall be shown by reference to the testimony of Cullen, and to our own experience. Cullen indeed says in his nosological definition, that the symptoms enumerated exist "without any other disease, either of the stomach or of other parts."<sup>1</sup> Some of these symptoms, as inflation, eructation, rumination, cardialgia, pain in the stomach, sometimes occur in hearty people who have a great appetite. These cases are called dyspepsia, but erroneously; they proceed from eating more than the gastric juice can dispose of, and disappear at once on moderating the appetite. There is in these cases no want of appetite, no nausea, no vomiting; neither is there paleness nor any general disease. In these cases therefore the symptoms in question appear unconnected with any morbid affection; but I have never seen any case of dyspepsia, properly so called, without morbid affections of other parts of the venous cavity.

1807. Cullen, although he makes the declaration above stated, says expressly, that "the symptoms above

<sup>1</sup> "Sine alio vel ventriculi ipsius vel aliarum partium, morbo." Cullen, *Synopsis Nosologiæ*, Tom. ii, p. 201. (See 1795.)

mentioned (1796) are often joined with many others;<sup>1</sup> but these he considers not as idiopathic, but as sympathetic affections, “depending upon some affection of other parts of the body communicated to the stomach.”<sup>2</sup>

He mentions costiveness among the symptoms in his nosological definition (1795), and looseness and griping in his First Lines.<sup>3</sup> This is sufficient to show that other parts besides the stomach are affected in dyspepsia, but as Cullen’s theoretic views prevented him from stating them, we must turn to our own experience.

1808. The following cases will illustrate this subject; they are not selected for this purpose, but are taken as they occurred.

1809. A man, aged perhaps thirty, of a firm frame, had very good health until he had an attack of autumnal fever some years ago. After his recovery, as it was called, his health was never so good as it had been.

His stomach, when he applied to me, was uneasy and painful, with considerable flatulence and sourness, with occasional belchings of water and wind; the pain in the pit of the stomach extended to both sides of the chest, and around the edge of his ribs; he had a moderate appetite; but was sallow, considerably emaciated, and weak.

In addition to these symptoms, which induced his physicians, of whom he consulted several in the course of a number of years, to consider the case as dyspepsia, he had others which he did not mention; and which were elicited by questioning him.

<sup>1</sup> Cullen’s First Lines, &c. MCXCI.      <sup>2</sup> Ibid. MCXCIV.

<sup>3</sup> Ibid. MCCV.

His head was heavy and dull, and he could not read or think with any satisfaction (1320).

Although much reduced, he had a considerable fullness of the epigastrium so as to feel tight and full; a dry cough; and such a difficulty in speaking in public, as to compel him in a great measure to decline it.

Whenever the pain around the edge of the ribs was most severe, the urine was most free and generally pale.

His passages were small, thin, and mucous, and generally yellow.

In this case the head, liver, kidneys, and bowels were affected.

1810. A young lady about twenty, had an autumnal fever sixteen months before the time of her application to me. After the fever was removed, she did not recover her appetite; in a short time she began to spit up her meals soon after eating, which Cullen, I suppose, designates by the term rumination: eructation, acidity, and vomiting of a sour mass followed; at length the stomach became so irritable that what she ate was not retained long enough to ferment, but was thrown up in a few minutes after it was swallowed. For the last five months she had not retained a meal five minutes. On one occasion I witnessed the fact of a meal being thrown up immediately after it was swallowed. She had, notwithstanding this state of the stomach, some inclination to eat.

She was also very costive, and took Epsom salts to move the bowels. She had latterly been compelled to take two table-spoonfuls for this purpose: this she did once a week, and had no passage without. The discharges were thin and yellow.

She was pale and emaciated, and could not walk two steps unsupported. The physicians had considered her disease as dyspepsia.

The opportunity was embraced of inquiring into the effects of so great an accumulation of blood in the venous cavity, as must have existed in this extraordinary case of dyspepsia, on the other parts of the venous cavity; viz. on the veins of the head, of the liver, of the kidneys, of the uterus, &c.

She had a pain in the head from the commencement, which increased *pari passu* with the other symptoms till it became intense; she had also a buzzing or beating in the head, and for the latter six months dimness of sight and vertigo.

She had an uneasiness in her right side, which gradually increased to a pain; also tenderness of the epigastrium.

The urine was high coloured, became more and more scanty, and for the last three months had become blackish, like thick coffee grounds, very small in quantity, and was discharged only once a day.

The uterine discharges at the commencement of the period, twelve or fifteen months back, returned every second or third week, and were of the usual quantity; latterly they had ceased entirely.

For two months back she had had severe cramps in her legs and arms; and frequently had hiccough.

She had a distressing pulsation of the cava (1266); her pulse was extremely feeble and moderately quick.

In this case likewise, all the parts of the venous cavity were affected, and the affections were proportioned to one another, and all of a high grade.



1811. A lady of thirty or thirty-five, delicate form, pale complexion, had had for some years all the symptoms of dyspepsia in a high degree; had a great deal of acid in the stomach, and severe pains in it and the neighbouring parts; frequently vomited, sometimes a viscid acid fluid, and sometimes a limpid tasteless fluid, and was very much troubled with wind in the stomach; had been compelled to restrict herself to a few articles of diet, and with all her care suffered excessively.

She had in addition to these symptoms pain in the head, right side, between the shoulders, through the chest, and in the kidneys.

She had palpitation, a pulsation at the top of the sternum sometimes, and one in the abdomen frequently (1266, &c.).

She had also slight convulsive motions in the muscles of the hand and fore-arm.

Her pulse was very weak, and slow.

1812. A man living near a mill-pond, had an ague and fever in 1807: after getting rid of the fever he continued pale, his liver and spleen were swelled, and he had a cough.

In 1808 his stomach was unable to take certain kinds of diet; it first refused coffee; and became more and more disordered, with flatulence, &c. till June 1809. In the latter year he commenced travelling regularly, and his health improved very much; but his stomach continued to be disturbed by coffee, and a variety of articles of diet.

In 1812 he stayed a day or two in every month at the house where he had been first attacked by ague and

fever, and here he had the same disease a second time. The stomach pretty much in the same state as before.

In 1815 had a violent bilious fever; after recovering had a tightness and fulness about the stomach, which swelled after eating. Continued pretty much in this state, notwithstanding the use of the nitric acid.

In 1818 vertigo was added to the symptoms.

In 1819 palpitation, frequent diarrhœa, stomach more disordered. In 1820 palpitation severe.

In 1821 vertigo worse; dimness of the eyes, and a feeling of their being stiff set in the head; noise in the ears; sick fainty fits and no appetite; acid in the stomach for the first time; eructation had continued from the beginning.

In 1822 acid increasing very fast; sick fainty fits increased; palpitation dreadful.

In 1825 flatulence, acidity, eructation; cannot take any nourishment but milk and water and crackers; cannot drink water, as it disorders his stomach; vertigo; pain in right side; violent palpitation; pulsation of cava very strong; costiveness and sometimes diarrhœa.

1813. A man of very small frame, but uncommonly vigorous and active, had been much exposed to miasmata; after a severe attack in March 1820 he recovered with a disordered stomach, which the physicians whom he afterwards consulted called dyspepsia.

He had little appetite, great heat in his stomach, excessive quantity of acid, so much flatulence that he was compelled to rise frequently in the night; a great quantity of a tasteless fluid frequently came from his

stomach ; he was often costive, and often had spells of purging for three or four days together.

He also had pain in his head, in his right side, across his loins so severe that he could not sit, and frequently through the whole of his bowels.

He had frequent attacks of gravel ; the water was scanty and scalding, sometimes in forty-eight hours he did not discharge a gill, and that was tinged with blood.

He was emaciated, sallow, and weak.

1814. From these statements and facts it appears that the remote causes of dyspepsia are known to produce weakened action of the heart (1800); that this produces accumulation of blood in the venous cavity (1218); and this accumulation, those effects which constitute the disease ; viz. anorexia, &c. (1803).

1815. To the doctrine of Cullen, and others, viz. that indigestion proceeds from loss of tone in the stomach, produced by the remote causes,<sup>1</sup> many facts are strongly opposed.

1816. Young children are remarkable for their powers of digestion, and as much so for their feebleness, and for absence of every thing like tone in their muscular fibres. Delicate and feeble boys often digest more rapidly, and a greater quantity, than robust boys. Men soon after arriving at maturity, when the tone of every muscular part is greatest, have not near so rapid a digestion as they had during their growth ; and when they become old and lose their tone, they often retain their powers of digestion perfectly : hence it has been observed that old men eat often like children. Even after death, when all tone is of course

<sup>1</sup> Cullen's First Lines, &c. MCXCIII.

utterly gone, digestion, as far as it is effected in the stomach, goes on. Even the stomach itself is digested when on sudden death a portion of the gastric juice is left in its cavity; and this process can be effected by means of the gastric juice even out of the body, as has been shown by that judicious and able physiologist Spallanzani (1440).

1817. The most operative causes are not applied to the stomach. Of the causes mentioned by Cullen as acting immediately on that organ, some are not causes, some act very rarely, and others are alone very inoperative.

1818. Very frequent spitting, without any thing chewed to excite the flow of saliva, is a diseased state; and if dyspepsia occur after it, this disease is not produced by the spitting, but is the effect of the continued and increased operation of the same cause which produced that symptom. The simultaneous operation of blood accumulated in the venous cavity, upon the stomach and the salivary glands, has been heretofore pointed out (1463).

1819. Frequent spontaneous vomiting is also an effect of the same cause, a symptom of the approaching disease.

1820. Frequent surfeits or immoderate repletion of the stomach are always accompanied by the use of condiments. It is therefore evident that another cause is present besides mere repletion; and is included under another head, aromatics. Repletion itself moreover evidently operates on the heart, exciting it to increased action; and also rapidly fill the vessels, so that its action is more general than local.

1821. The continued use of opium and bitters will undoubtedly produce the disease, but they affect the whole system. Their operation is so far from being confined to the stomach, that from the first dose to the last they affect the action of the heart, exciting it to increased action, which terminates in weakened action. Indeed before the stomach is so far disordered as to attract attention, the effect on the heart is evident from the paleness of the surface. These causes are however limited in their operation, not many, at least as far as my knowledge extends, habitually using either.

1822. Of the remaining causes which act immediately on the stomach, pretty much the same may be said. They are in very general use; tea, coffee, and aromatics among females; coffee, spirits, and tobacco among males. They are all used so very generally from youth to old age, while dyspepsia is comparatively so rare, that they cannot have as much effect as is commonly attributed to them.

1823. When therefore they produce marked effects, as they certainly sometimes do, it is plain, that the effects are so much greater than appear among numbers who escape, that some other cause must be co-operating.

When we further reflect that the use of these things did not produce so marked an effect until the patient was reduced in general health, became pale, &c. and does not always produce them even then, the same thing is evident.

1824. On the other hand, the causes which do not act on the stomach, viz. an indolent and sedentary life,



vexations, disorderly passions, intense study, excessive venery, exposure to cold air, and to miasmata, unquestionably will produce the disease, however little the person may be exposed to the causes acting immediately on the stomach. The most operative of the latter, moreover act also on the general system.

1825. It is evident therefore that the most operative causes of dyspepsia are not those which act immediately on the stomach, but those which are general in their action.

1826. In the indisposition preceding fever, very often the first symptoms are those of indigestion; the patient complains that, although perfectly well otherwise, he cannot eat, and if he eat it does not agree with him; the food rises on his stomach, he is flatulent, &c. During the fever there is no appetite, no digestion, and if food be taken the symptoms of indigestion appear; but after free evacuations, even in the lowest state of debility, the appetite and the digestion are surprising. There is scarce any satisfying the appetite, and the stomach digests the most extraordinary quantity.

1827. This last phenomenon is entirely inconsistent with the doctrine of the dependance of digestion on the tone of the stomach, and consistent with the doctrine here advanced. For at the same time that digestion has become so perfect and rapid, indicating restored secretion of the stomach, the passages have become yellow, indicating restored secretion of the liver; and showing the simultaneous operation of some cause on both these chylopoietic viscera. This has been already shown to be accumulation of blood in the venous cavity (1463).

1828. The suddenness with which the appetite returns after the cessation of the fever, is also entirely inconsistent with the dependance of digestion on the tone of the stomach ; but not at all with the other doctrine. Tone cannot be restored in a day ; but the power of secreting a healthy fluid depending on the state of the circulation in that gland, returns with the return of that state which is favourable to secretion, and the change may, and often does take place in a few hours.

1829. In this case we know that a change has taken place in the circulation of the blood, and the healthy balance restored ; we know that a sudden change has taken place in the secretion of the gastric juice, by the increased appetite and power of digestion ; and we know that the other principal chylopoietic viscus, the liver, has suddenly returned to the secretion of its natural healthy fluid.

1830. The nature of the remedy whereby this change is produced is also opposed to the doctrine of the dependance of indigestion on atony. Nothing has been done to increase the tone of the stomach ; on the contrary, every thing done is calculated to lower the tone, to increase the atony. The return of the power of digestion during the continuance of atony, and in consequence of a certain change in the situation of the circulating fluid, shows that the indigestion did not depend on atony.

1831. Dyspepsia therefore is not the effect of loss of tone in the stomach, but of the accumulation of blood in the venous cavity, and particularly in those branches of the cavity which proceed from the stomach.

1832. From this conclusion the inference was drawn that evacuations from the venous cavity should cure the disease, and it has been amply supported by the result of the cases treated in this manner.

How this is to be effected need not be repeated here, being sufficiently stated already (1565, &c.). We shall however give some cases at large, that a proper judgment may be formed of the theory and practice here proposed.

1833. The person whose case is given at 1809 had consulted a number of physicians, and had been strenuously endeavouring to recover his health. He had by advice taken columbo, &c.; small doses of calomel at night, and a tea-spoonful or two of epsom salts in the morning; columbo and epsom salts; had visited the Bedford springs, &c.; but after all his efforts had been left in the situation above described (1809).

1834. He commenced with scammony, aloes, and calomel, in equal quantity, in pills, with directions to procure about three consistent passages every day. After taking the pills a week, he reported that the discharges were at first blue and thin, and afterwards a bright yellow; that the head was quite relieved; the uneasiness in the stomach much better; the pains, flatulence, sourness, and belching of water, or water-brash, abated.

February 19. Had taken thirty-two pills; discharges about three in the day; rather thin; begin to have specks of yellow; appetite very craving: had some days ago a pain in the left side, about the spleen; lost twelve ounces of blood from the arm; the blood was very black, almost entirely crassamentum.

The discharges being rather thin, he was directed to take pills of rhubarb, aloes, and calomel, instead of those first mentioned.

March 4. The pills brought away at first very yellow bile, and after a few days black; general improvement; continue the pills. The discharges being still somewhat thin, he received eight powders of calomel, each three grains, to take occasionally. He seldom took more than two pills in a day.

May 2. The pills were continued until the improvement in all points was such as to induce him to take them but once in three days. This was in the latter part of April, and in consequence of the omission, some of the symptoms re-appeared. Returning to the more frequent use of the pills, the symptoms went off again; but the passages were still like soft soap. The twisting pain in the epigastrium has not been felt for weeks; the appetite is too keen; flatulence is occasionally troublesome, but not much so; there is very seldom any sourness; the head is very much relieved; he still looks thin, but feels better; observed that one thing was certain, that notwithstanding all the purging, he was stronger.

May 8. He had latterly applied to the epigastrium, of his own accord, a plaster of Burgundy pitch and antimonium tartarisatum, which produced a great number of watery pimples; "the internal soreness was not so sensibly felt."

I had advised him on the second to take an emetic, which he did; it "operated well, but he threw up nothing but the medicine and water."

The discharges were still very much like soft soap,

with a few particles of yellow matter. After a large dose of the pills, operating four times, the last operation looks yellow; but the passages next morning are dark again. He now felt tolerably well, and said, "were the excrement of a healthy colour, he should think himself nearly well."

May 10. There was yet some throbbing, and oppression in the stomach, though not so severe as it was; the tongue continued rather foul. Gave him forty-eight rhubarb, aloes, and calomel pills.

June 6. Stopped taking the pills a week in the last of May; white passages for one day, when he began again; afterwards they became green, and then dark, like soft soap in consistence and colour. His complexion is dark; his passages are still bilious, occasionally yellow; all the symptoms much relieved. He was advised to continue the pills of rhubarb, aloes, and calomel. He was desirous of spunging the legs with dilute muriatic acid, which was assented to. Bilious symptoms were at this time common in the country.

July 10. Blistered the epigastrium, and kept the sore place discharging by the application of a plaster of fresh turpentine, which was allowed to adhere till it dropped off: he then thought all uneasiness had subsided; but it returned again in a less degree.

July 26. He has occasionally taken two pills; writes he is better, and hopes to have his health again.

August 1. He generally has one or more passages every day; the colour not quite yellow; to-day two passages more yellow than usual; has used the shower bath for several mornings.



Still has sometimes a degree of soreness, but it does not continue; looks very much better, improved in colour and flesh; feels lively and active, whereas formerly on rising in the morning "felt half dead," until by stirring he could excite some perspiration. His appetite so good that he cannot eat enough to last from one meal to another without oppressing himself; is able now to speak long and loud and often with little inconvenience. In the last week of July he took five or six pills of aloes and sulphate of iron, containing about eight grains of the latter.

This was one of the first cases treated after this manner: if not the first, it was the first of long continuance and so great violence, as far as I can now recollect. The unquestionable importance of the case and the successful termination will, I am persuaded, fully justify the space occupied by it. I shall state others as fully, because one case is not to settle the question of the propriety of a mode of treatment novel as far as my reading extends; and because every circumstance relative to it should be known to those who are to form an opinion of it, in order that they may do so correctly; and this is the more important as it must be acknowledged that the practice in this disease is unsettled, because the pathology on which it rests is covered with obscurity. The same reason will in several other cases lead to the same mode of elucidating the subject.

1835. During the time this case was going on, while attending a lady, I observed her husband, a small man of about fifty, chewing quassia; on inquiring his motive for that, he informed me that he had been a

very hearty man, &c. but that he was now declining. His complexion which was clear, and had been ruddy, was pale and delicate ; and there were very many delicate fine wrinkles in the skin of his face. He had lost his appetite, and was troubled with flatulence, &c. &c.

I observed to him that the bitter would do him little service, but that if he would take some of the pills his wife was taking, I was persuaded he would soon have appetite enough. He took the hint and used them with such benefit that in a few days he asked for a box for himself. These were the pills of jalap, aloes, and calomel. He used three or four boxes, of twenty-four pills each, in the course of the next three months ; but long before he had taken them, his appetite was such that after eating heartily at the regular time, he was unable to wait from one meal time to another ; but like a child was searching the closets for biscuits. With his appetite, his colour, &c. returned.

1836. The person whose case is stated at 1810, had had advice from different physicians, and had visited Bedford. By the use of the water of those springs she was considerably benefited. Returning home as the cold weather approached, she relapsed into her former state, and her friends for some time had considered her death as inevitable. Accidentally meeting with a friend of mine who had been my patient, she was induced by him to hope my advice would be beneficial to her. When, however, the inquiry into her case was over, the result of which is given above (1810), her friends were told without a moment's hesitation that the prospect for recovery was extremely poor ; that as she had been sinking for some time, from

the combined influence of disease and want of nourishment, she would continue to sink unless she could be enabled to take nourishment ; and that it was probable she would not live until any medicine could effect the purpose. They however, having brought her a considerable distance, were desirous an effort should be made ; and she particularly had been induced to entertain great hopes.

Under these circumstances she took on the third of February, at night, of scammony, aloes, and calomel, each five grains, in pills.

Feb. 4. In the morning, there having been no operation, the dose was repeated, but the pills were thrown up. Soon after, however, she had two passages, a mixture of green and yellow. At night she took the same quantity of the same medicines.

Feb. 5. The pills operated several times ; passages greener and not thin ; appetite gone ; very sick, throwing up mouthfuls of bitter green bile. Same pills repeated.

Feb. 6. The pills operated five or six times ; passages thinner and greener ; very sick ; very little alteration otherwise, except that the cramps, she thought, were less violent ; vomited green bile before and during the purging.

Took fifteen grains of ipecacuana, which operated on the stomach several times ; when the operation was over, she took ten grains of calomel and five of camphor. The pulse being very weak, the object of the emetic was to throw the blood of the venous cavity into circulation ; and that of the calomel and camphor, to sustain the action of the heart, expected thus to be excited, and to operate on the bowels.

Feb. 7. Found her better; last night was uneasy; symptoms more favourable to-day; pulse certainly better; no passage; no appetite; griping pain in the bowels; certain that the cramps have gradually moderated till they are quite light. She took the same quantity of the same medicines.

Feb. 8. She has had two or three black passages. No cramp since a light one yesterday morning; her urine has become lighter in colour, but much the same as to quantity; as she still throws up every thing she eats, she was directed to take every hour a single spoonful of milk. Same prescription.

Feb. 9. Medicine operated last night two or three times; the passages were very small, very black, and unctuous; one larger black passage to-day; the cramp very light; the pulsation in abdomen is better; retained the milk though it made her sick; the urine has become quite natural. Took at bed-time ten grains of calomel, and five of aloes and camphor.

Feb. 10. No operation at twelve o'clock, took a similar dose. At night she had had two or three rather larger deep green, thick, and unctuous passages, very acrid and nauseating.

Head-ach very bad; pulse very low and weak; had some cramp; at bed-time took of scammony, aloes, and calomel, five grains each.

Feb. 11. Puked last night bile of a black green colour; discharges from the bowels slight, but very green.

Takes panada with wine, and retains the little she eats; the pulse is better; the pulsation in the abdomen is better; the cramps worse. Same prescription. The operation having been very slight, at bed-time she took double the quantity of the same medicines.

Feb. 12. She has had two green viscid discharges ; the stomach retains what she sups of caudle, &c. &c. Took scammony, aloes, and calomel, of each seven grains ; operated twice more ; passages green and viscid.

Her pulse is decidedly larger and stronger ; complains of being very drowsy ; urine perfectly natural ; some cramp still. In the afternoon took of the same medicines ten grains each.

Feb. 13. She took the same quantity of the same medicines in the morning ; passages more free, of better colour, less green. At night took aloes and asafoetida, of each ten grains.

Feb. 14. The passages light brown ; stomach sick, throwing up green bile. Gave an emetic of ipecacuanha. Vomited a great number of times, throwing up acrid green bile.

Applied a blistering plaster to the epigastrium which was still tender, and gave half a grain of opium. Vomiting continued, hiccough distressing.

Feb. 15. The plaster drew well ; the hiccough better ; she is excessively weak ; ptyalism coming on ; applied dilute muriatic acid with a sponge to the legs. Not being able to keep any thing down, directed an injection of four ounces of soup, which was retained all day ; at three o'clock another injection of eight ounces of soup was also retained.

At night apparently better ; pulse better ; stomach easier with respect to soreness as well as nausea ; she was however excessively languid ; applied a small blistering plaster to her head, which produced very little discharge.



Feb. 16. Surprisingly low and languid ; pulse very feeble but regular ; she can scarce be seen to breathe ; never speaks if she can possibly avoid it ; gave her aloes and rhubarb, of each six grains. Kept down some veal soup, given very often, and about two spoonfuls at a time. At night she was so low that all but myself expected her death in the course of the night. Overhearing her friends express their regret for having brought her to this place, I observed to them that they had no right to complain, that they were fully apprized of this very crisis which had been foreseen, and that I was yet by no means certain she would die ; and that she certainly would not on that night.

Feb. 17. The medicine operated three or four times last night ; the passages were of a deep yellow inclining to green ; she was considered rather better this morning ; pulse a little stronger ; continued the soup, which she kept ; put on a large blistering plaster on the abdomen, and gave a pill of rhubarb and aloes, two grains of each, with a quarter of a grain of nitrate of silver. By night her pulse had manifestly improved.

Feb. 18. The medicine had operated several times ; passages green ; pulse improving still ; a similar dose this morning ; at two o'clock the pulse was manifestly larger, fuller, and more free ; took two more pills in the course of the day.

The cramps have not troubled her for some time, except a very slight one to-day in one hand ; she sees better ; feels better ; vomits none ; hiccough is gone ; urine is natural.

Feb. 19. Took another pill of the same about two

o'clock in the morning, and another about eight o'clock ; she is still very weak, lying motionless, and scarce ever speaking unless urged, and discharging large bilious passages on cloths laid under her ; but the stomach is so much relieved that she takes a cup of soup frequently in the day without the least inconvenience, and calls for it ; she feels no inconvenience from pressing the epigastrium, though three days ago she could not bear to have it touched ; the pulse full and regular ; every symptom relieved almost entirely, but her head and eyes.

She has had a cough within the last two or three days, which hurts her head.

Feb. 20. She took a pill about two, and another about nine o'clock this morning ; the passages in the night and morning deep green or brown, several of them pretty free.

The mouth continues sore ; the strength very much improved ; frequently drinks off a cupful of soup ; her sight is better.

At night passages dark yellow ; considerable griping ; took a pill of rhubarb, five grains, and one-third of a grain of nitrate of silver.

Feb. 21. She took last night five drops of laudanum and was delirious after it ; she had never before taken laudanum. Same pill.

Her passages to-day are nearly natural ; had two or three of them.

Feb. 22. Deep green passage this morning ; same pills ; several passages since of a deep yellow slightly tinged with green.

Improving in every symptom.

Feb. 23. Several bright yellow passages yesterday, and a considerable number to-day.

Feb. 24. The original complaint removed from every part except the head, which is still somewhat affected; but the cough and expectoration troublesome. The expectoration was entirely mucous. Catarrhal complaints were common at the time: the snow was a foot deep on the ground, and it was very cold. The patient lay in a small room warmed by a sheet-iron stove. It had been made excessively hot, so that to relieve the oppression produced by the heat, most unwisely the doors and windows had been opened. On the next day this catarrhal disease appeared; and, not without danger in any case, in her low situation threatened to carry her off. She took the same pill of rhubarb and nitrate of silver; and had a blistering plaster to the side for the cough.

Feb. 25. Her sister meeting me this morning at the door, said she was much better this morning, and immediately added that the medicine had operated ten or twelve times; passages yellower. She takes a cupful of soup ten or twelve times a day, sometimes two at a time; never vomits; her sight better to-day. The blistering plaster to the side drew largely.

Feb. 26. Several passages yesterday of a deep yellow natural colour. She relishes soup very much; sometimes drinks off two cupfuls at once; her pulse is considerable; her bones begin to be less prominent.

About mid-day found she had had fewer passages than common; she had pain in the head and fever. She took a pill which operated but once; gave her another at night and left her very uneasy indeed.

Feb. 27. Found her this morning better; called for soup: on inquiring was told the pills had operated very many times.

The cough being troublesome put on another blistering plaster, which by evening had drawn remarkably well; afterwards the cough was better.

Feb. 28. Cough much better; pulse quite good; passages quite natural or nearly so; appetite very good; calls for soup early and often; head very much better, indeed no complaint about it.

March 1. She took rhubarb five grains.

March 2. Cough troublesome; but every symptom present when she came to Winchester is gone; most of them long since; the head was the part last relieved. These are the words of the journal kept, but I have no recollection that she had menstruated. She had by this time become so strong as to talk loud enough to be heard all over the house, when her soup was not ready.

The cough was repressed by blistering, and by a continuance of the cathartics already mentioned; and there was the fullest prospect of her perfect recovery, when another spell of cold damp weather with a north-east wind, revived the cough, and produced in addition the suffocating sensation common in peripneumonia notha. Being called up hastily in the night I found her in full possession of her faculties, struggling for breath, and in half an hour she was dead. She died on the eleventh of March, without any return of the symptoms of the original complaint.

1837. The lady whose case is stated at 1811, had on the day I was first called taken an emetic, which had

operated smartly, and she had thrown up a small quantity of blood of a black colour ; on which account she had desired my assistance.

She was advised to make an effort to obtain relief from the whole of the symptoms, and not to be satisfied with temporizing ; to which no objection being made that need be mentioned, she immediately commenced by taking a mercurial cathartic, and on the next day another.

Nov. 28. Finding the medicine had not operated well, she took of scammony thirty grains and calomel ten.

Nov. 29. Took scammony forty grains, aloes twenty, in pills ; and as the operation was slow, it was aided by calcined magnesia.

Nov. 30. Took scammony twenty grains, aloes five grains, calomel ten grains, in four pills : magnesia calcined half an ounce. Little or no operation yet.

Dec. 1. Took scammony, aloes, and calomel, six pills. The aloes was employed because to rhubarb she had an utter aversion.

Dec. 2. Took calcined magnesia and senna ; not weighed but marked large doses. She took three or four times as much as common to operate ; as one ounce of senna, or half an ounce of magnesia.

Dec. 3. Took scammony sixty grains, jalap thirty grains, in twelve pills : magnesia a large dose.

Dec. 4. Took scammony seventy grains, in pills : magnesia a large dose.

For the last four days the passages (there were several every day,) consisted entirely of black blood. On one day the chamber pot was half full. The friends



were all much alarmed at first ; but being assured that I had never experienced any other than a salutary effect from such discharges, and finding that she actually was considerably relieved, they were satisfied.

Dec. 5. She took of scammony twenty grains : of magnesia a large dose.

The discharges to-day a medium between black blood and black green bile.

Dec. 6. Took scammony and calomel, twenty and ten : a large dose of magnesia.

The discharges a pure black green bile, colouring the sides of the pot as it was moved from side to side of a yellow colour.

Dec. 7. Took scammony and calomel, twenty and ten : magnesia. 8th. Took nothing. 9th. Magnesia alone.

During these three days the discharges changed to a yellow, and she was able to go about, greatly relieved in every particular, indeed considering herself so well as to neglect my urgent request that she would for some time take medicine sufficient to procure at least two passages a day.

On the fourteenth of December however, in consequence of this neglect, she had a return of the symptoms with great violence. She had an excessive quantity of acid in the stomach ; violent vomiting, the struggle being actually alarming ; pains in the stomach and bowels, the sternum, the shoulders, or towards the shoulders and back, the liver, and kidneys.

Took in the night six pills of scammony, rhubarb, and calomel.

Dec. 15. Six pills of jalap, aloes, and calomel. 17th.

Four pills of the same. 18th. Scammony, twenty grains. 19th. Jalap and aloes, four pills. These medicines operated pretty well, and she improved daily in every respect.

From the nineteenth to the twenty-ninth she took medicine occasionally only; in all, of aloes eighty grains, of jalap twenty, and one dose of senna.

The acid gaining head she took on the thirtieth magnesia with a little soda, and twelve grains of aloes.

Dec. 31. Senna and magnesia.

Jan. 1. Magnesia. 2d. Senna and magnesia.

The discharges from these medicines were all light coloured and thin, and she was getting worse; so as again to request my attendance.

Jan. 3. Scammony, twenty grains. 4th. Scammony and calomel, two doses. 5th. Senna and magnesia. 6th. Scammony and calomel, ten grains of each, and some magnesia. 7th. Scammony and calomel, of each twenty grains, and some magnesia.

The magnesia in almost every instance was of her own prescribing; which she, through desire of present relief, took in place of repeating the scammony when the first dose did not operate. The discharges were still light coloured and thin, and she was rapidly getting worse. This consequence was urged upon her, and she was at length convinced, to use her own words, "that nothing but thorough work would do," and was determined to give up the magnesia.

Jan. 8. She was by this time very low. She took eight pills of jalap, aloes, and calomel, with two of scammony and calomel which I had about me, to make out a dose.

Jan. 9. Sundry cathartic pills with calomel at several times in the day. 10th. Twelve pills of rhubarb, aloes, and calomel. 11th. Sixteen pills of jalap, aloes, and calomel. For the first two days she was in excessive pain in the stomach, &c. the medicine not operating until to-day, but she resolutely withstood the inclination to take magnesia. This day the discharges became black and free, and she felt decided relief.

During the time that elapsed from the eighth until the medicine operated she suffered most severe, most excruciating pains. There were moments when her sufferings were awful. Several friends were continually engaged about her in restraining her from injuring herself by her tossing about, and occasionally in holding her up in bed. On one occasion while thus supported, she fainted in their hands with excess of pain; and such was the intense and almost intolerable anxiety and agitation, that her death would undoubtedly have been a relief to their feelings.

During this period, staying much with her for the sake of observation as well as attention, I observed that when the pain was most excruciating, the pulse was very low; and that when she was easy the pulse was full. It was immediately determined to support the pulse with hot brandy toddy, until the mercurial cathartics, now freely used, should act not only on the bowels, but on the pulse, as they generally do in a few days. The relief was instant on the first trial of the brandy. In a few minutes she was lying quite easy, when it was a matter of surprize to find, although it was expected, and the treatment was planned on the expectation, that the pulse was full and soft. The

only dread I had entertained, was that she would die before the medicine could have time to act. I now thought her in my reach, though all around considered her death inevitable. She took after this time hot toddy whenever in pain, and relief was obtained generally in a few minutes.

After the medicine had operated as above stated (11th), producing free black passages, the pulse became more uniform, the necessity for the brandy ceased, and it made her sick to take it.

During several days following the eleventh she took large doses of mercurial cathartics, which operated freely : the passages, at first black, became next deep green, and finally yellow ; and she mended every day.

During this operation she for several days felt severe pain, which the attendants frequently mistook for the original pains ; but it was evident to me that they were caused by the griping of the medicine, and the acrid nauseating bile discharged. She herself clearly distinguished between them. The original was excruciating and seated in the different parts above mentioned ; the latter was in the bowels alone ; and from the attendant motions of the bowels, from the nausea, and its being shortly followed, when severe, by a passage, could not be from any other cause than the one assigned.

During these days she took very large doses of medicine ; this was necessary ; it was fully ascertained by many trials that nothing short of what was given would effect the purpose. She took on the 12th in pills seventy grains of scammony, and forty of calomel. On the 13th, scammony sixty-four grains, calomel thirty-two grains, rhubarb ten grains.

Jan. 14. Sixteen pills of the same.

Jan. 15. Twelve pills of the same, except the calomel.

Jan. 16. Scammony and calomel, forty and twenty, with some senna.

Jan. 17. Scammony and calomel, of each twenty grains; scammony and rhubarb. sixteen pills. Pills, when the weight is not stated, contain almost universally five grains each.

During this time she improved every day; was not troubled with acid after the twelfth; and vomited only now and then on taking the jalap pills.

Jan. 18. Ptyalism appearing, and wishing to substitute some other excitant for the calomel, directed her to take columbo, which she did for some days, together with the cathartics, but did not take much.

Jan. 19. She took jalap, aloes, and calomel, twenty-four grains of each.

Jan. 20. Jalap and aloes, of each thirty grains.

Jan. 21. Jalap, fifteen grains.

Jan. 22. Jalap, thirty grains.

Jan. 23. Jalap, fifteen grains. Some return of pain in the course of the day; took eight pills of jalap, aloes, and calomel.

Jan. 24. Twelve of the same.

Jan. 25. Jalap, sixty grains.

Jan. 26. Considerable pain this morning. On inquiry found the attendants had given the pills faster than directed; in consequence of which, instead of a few loose consistent yellow passages, she had a number of thin and watery ones; after which the pain came on.

Something of the same kind occurred, it will be seen



on looking back, on the twenty-third, after taking for three mornings jalap without aloes or calomel: and the same occurred to a much greater extent after taking magnesia and senna for some time in the commencement.

In consequence of the return of pain, though the mouth was sore, she took calomel with her pills.

Jan. 27. Apprehending that the mouth would become very sore, determined to use the nitrate of silver, which I had often used with jalap and aloes instead of calomel, and had found to act very much like it, not only in affecting the appearance of the discharges, but in raising the pulse; one grain of the former, however, being equal to ten of the latter in effect.

During this and the three following days she took, each day, four pills at intervals in the morning when the pulse was lowest; each pill contained of jalap two grains, and of the nitrate of silver half a grain.

The medicine did not act sufficiently and raised the pulse very much, producing head-ach.

Jan. 31. Took scammony and aloes, of each ten grains, and of the nitrate of silver half a grain, in four pills at once.

Feb. 1. The mouth having become less sore, took eight pills of jalap, aloes, and calomel.

Feb. 2. Six pills.

Feb. 4. Five pills of scammony, aloes, rhubarb, and calomel.

Feb. 6. Three pills of the same.

The discharges became natural in consistence about the twenty-first of January. The appetite has been for some time very good; no acid (see Jan. 17); no

vomiting ; no pain ; no water brash ; strength returning ; colour good and healthy.

Continued to take pills of rhubarb and aloes occasionally after my attendance ceased.

March 17. She has taken her pills only occasionally since last date ; but often enough to procure a habitual discharge twice a day from the bowels.

She continues well ; her colour usually pale is now quite good ; eats those things which she could not formerly indulge in ; indeed eats any thing, apples being mentioned as the only thing which produced any uneasiness in the stomach ; uses coffee, which until lately she dare not touch.

August. Has had this summer a continued discharge from the bowels of a bilious appearance. Her colour is still quite good, and she is more fleshy than she has been for many years.

1838. The patient whose case is stated at 1812 had also been advised by a number of physicians, and had tried various remedies, besides the water of various celebrated springs. The case is stated in his own words almost verbatim.

In 1815 he used the nitric acid and other remedies without any material advantage.

In 1816 he used columbo and salt of tartar, mixed together with boiling water ; of the former one ounce, and a quarter of an ounce of the latter, with water enough to make the mixture barely liquid. This kept his bowels very regular, and was very beneficial to him.

In 1817 used Indian physic in spirit, which kept his bowels open, and his health improved considerably.

In 1822 had a box of pills from *Dr. Owen*, and took also a mixture of rhubarb and salt of tartar, which together produced three or four dark green passages a day. These had a very good effect; he thinks if he had continued them he should have been cured. But he got so much better that he went to work, laboured very hard in preaching, and became as ill as ever.

In 1823 used rust of iron with some cathartic, which operated twice or thrice a day; the passages were black. He improved in appearance; countenance was flushed; but had a fulness of the head and eyes; and was so *nervous* he could scarce stand without a stick, and could not write.

In May was advised by a physician to lose blood once a week; to take four grains of calomel twice a week, and enough of Epsom salts every morning early to operate two or three times; after a fortnight to take Epsom salts without calomel for seven or eight months, with two or three grains of bismuth before every meal, and a teaspoonful or two of calcined magnesia shortly after eating.

This course weakened him rapidly; the discharges from the bowels were almost clear yellowish water. As he weakened, the palpitation and other symptoms increased. He continued the course for two months, and after he had ceased taking the medicine a diarrhoea continued.

In August he tried a chalybeate water for a week, which produced constipation, and the palpitation became so excessive he could not sleep. Tried the White-Sulphur spring; it also produced constipation, and palpitation.

In September a physician gave him ipecacuana to vomit him; it however failed of that, and purged him severely. He next gave bismuth three times a day before meals, first in three, and gradually rising to eight grain doses; it produced great appetite: sourness the same; palpitation still quite considerable. He was also electrified in every direction: after all very little better.

In October tried rust of iron and gentian in port wine; used this medicine but a little time; it disordered the stomach considerably, producing acid, cramps, &c.

He next tried lie made of hickory ashes and soot; used four or five gallons: all the good it did was to neutralize the acid, and hardly that. Oyster-shell lime water was next tried. Did no good.

About this time a deadness of the flesh of the face and head, and a numbness of the top of the head came on.

Mead's anti-dyspeptic pills were next tried. They helped the palpitation a good deal, relieved in a measure the noise in the ears; but the acid was the same, a continual flow of acid.

In this state of things he wrote (March 1824,) to request my advice. He was directed to take as many pills of jalap, aloes, and calomel, as would operate about three times a day; but if the passages should be thin, to use the pills of rhubarb, aloes, and calomel; the object being to procure loose but consistent passages. The former produced hasty watery passages; he does not think they did any good at all; took them only two or three times; weakened him

very much. He then took the pills of rhubarb, aloes, and calomel, which had a very happy effect. The very first dose checked in a great measure the belching, the wind being determined the other way. This tendency downwards produced great pain in the bowels for a week or two. The pills made him very sick, and produced three or four passages, dark, black, green, and brown, intermixed in every way.

After a few days he began to belch up bile instead of acid; this continued about a month; never had much acid since; vertigo somewhat better; palpitation not so violent as it had been; cramps gone.

The passages having become yellow, he was advised by a physician to cease taking the pills, except occasionally; and to take in common a pill composed of rhubarb five grains, asafœtida two grains, and ipecacuana one grain. This he did, and continued till the spring of 1825 sometimes better and sometimes worse. Whenever he felt the acid, he took the pills of rhubarb, aloes, and calomel, and obtained relief. He sometimes used rhubarb and magnesia to keep the bowels open.

In April he drank some coffee, which disordered his stomach very much.

In the same month he came, with great difficulty by short journeys in a gig, to Winchester. At that time he had a small passage every morning, pale yellow bordering on clay colour, rather firm to pass easily; stomach flatulent; no acid for near a week, but could not take any nourishment but milk and water with a little loaf sugar, and a cracker; no meat but lean bacon. This was his meal, morning, noon, and



night. He could not even drink water in the intervals of meals, as it disordered his stomach.

He immediately commenced taking the pills he had been advised to lay aside, and continued them for three weeks with so good effect that he urged me to tell him what medicine it was ; and when told he would scarce believe it.

He continued ten weeks taking pills of rhubarb, aloes, and calomel, rhubarb and calomel, and aloes and calomel, according to circumstances, the object being, as has been repeatedly stated, to procure consistent loose passages ; during this time he took about half an ounce of calomel.

He had in this time improved very considerably in general appearance ; not much in flesh, but in colour ; his appetite was better, though he still restricted himself to bacon, crackers, and milk and water with loaf sugar ; and he could drink water.

About the last of July the town became more sickly, and in the course of the autumn was more generally so than usual. He soon felt the effects of this change ; his complexion became very dark ; stomach disordered ; not able to drink water, though troubled excessively with an internal burning and violent thirst ; his passages became almost as thin as water ; and he was so weak that he was confined to his room, lying on the bed chiefly.

July 27. Took ten grains of calomel alone. 28th. Ten grains of calomel : not being quite active enough, took on the twenty-ninth ten grains of calomel, with five of rhubarb : the three following days twenty grains of calomel, with ten of rhubarb each day : the bowels

not being sufficiently moved by these doses, they were gradually increased, so that on the second of August he took ten grains of rhubarb, and thirty of calomel; 3d, of rhubarb fifteen grains, and thirty of calomel; 4th and 5th, of rhubarb and calomel, of each thirty grains, on both days; 6th and 7th, forty grains of each on both days; 8th, of rhubarb fifty grains, and forty of calomel; 9th, of jalap and rhubarb, of each twenty grains, with forty of calomel; 10th, the jalap producing nausea, he took of scammony twenty grains, rhubarb twenty, calomel forty grains.

The passages from all these medicines were dark green, thick and consistent, about two a day. He complained most of weakness when there was no passage; and after the second operation of the last dose, felt greatly benefited in his feelings. His pulse was always fuller when there was an operation. The large doses produced no more passages than the small, but the passages were larger; except that the discharges were freer from the jalap and scammony on the ninth and tenth, being larger and more numerous; on which occasion he experienced the decided benefit above stated.

It is to be observed that the necessity for large doses was not confined to him; but that in this season it was a general observation among physicians, that uncommonly large doses were requisite to produce the usual effect on the bowels.

Aug. 11. Took this day of scammony and rhubarb, of each twenty grains, with twenty of calomel, which operated well; passages green; appears better and thinks himself so; has had for two or three days a

great desire for pickles ; thinks much of eating, though he has taken nothing for many days but milk and water with a little sugar. Took in the course of the day one-third of a drachm of muriatic acid in a quart of water.

Aug. 12. Slept well ; drank this morning a considerable draught of boiled milk which he relished. Took jalap and aloes, twelve pills ; puked him violently, operated indifferently ; two-thirds of a drachm of the same acid in the course of the day ; feels very weak.

Aug. 13, 14, 15. Took of scammony and rhubarb, each forty grains, with thirty of calomel, on each day.

Aug. 16 to 19. Took rhubarb eighty grains, calomel forty every day ; 20th to 22d, rhubarb ninety grains every day. All these medicines operated in the desired manner, excepting that the passages were small. There were from three to five passages a day of nearly black viscid thick matter.

Aug. 23. The operation being small, tried jalap again. He took jalap sixty grains, and calomel thirty. All these medicines, except the senna and magnesia, were given in the shape of pills ; and he in most instances took the whole in a few minutes as one dose. The last pills were immediately thrown up ; soon after gave him calcined magnesia, as there seemed to be a necessity for something to act more freely than the rhubarb and calomel did, both on account of the black matter which ought to be evacuated, and the fear of ptyalism.

Aug. 24. Scammony and calomel, of each thirty grains, magnesia calcined eighty grains ; through the

day the discharges were black and thick ; while this black matter was passing, there was great nausea.

Aug. 25. Magnesia alone, twenty heaped teaspoonfuls in the course of the day in four doses ; several large black and more fluid discharges, very offensive.

Aug. 26. Took scammony thirty-two grains, and calomel sixteen ; also eight heaped teaspoonfuls of magnesia in two doses ; passages thick, tenacious, not so dark.

Aug. 27. Took scammony sixty grains, calomel thirty ; magnesia repeatedly ; one yellow passage, thick and tenacious.

Aug. 28. Scammony eighty grains, calomel forty ; magnesia twenty-four teaspoonfuls heaped ; yellowish thick passages.

Aug. 29. Scammony eighty grains, calomel forty ; no magnesia ; no operation.

Aug. 30. Early this morning two darker, thick, tenacious passages. In the evening took scammony fifty-four grains, calomel twenty-seven. The same dose was prescribed as for yesterday ; but he only took eight of the twelve large pills into which the scammony and calomel was made.

Aug. 31. He took scammony twenty-seven grains, and calomel thirteen, and sixteen teaspoonfuls of magnesia : to-day he had two yellow, thick, tenacious passages.

This change to yellow being evidently the consequence of the administration of magnesia, I determined to omit it, though he had taken much calomel, and run the risk of ptyalism : without this medicine the discharges were not dark, and when they ceased to

be of that colour, his countenance immediately blackened, and he felt weaker and oppressed; so that he begged for something to bring off the black matter, which he was always glad to see.

At this time he was very thin; and though he ate very little, he had for some time indulged in things which a few weeks before he could not have touched; viz. toast buttered, and soft bread in tea.

Sept. 1. Took early in the morning scammony two drachms, and calomel one drachm; the magnesia being omitted, the scammony was necessarily increased: he had three or four moderate passages, reddish or deep orange coloured, tenacious, and thick.

Sept. 2 to 6. Scammony one drachm, calomel half a drachm, every day; dark passages every day.

Sept. 7. Jalap, aloes, and calomel, each one drachm. The nausea having disappeared, jalap was substituted for the scammony. Apprehensive of ptyalism from the quantity of calomel he had taken, he took magnesia, twelve teaspoonfuls at two doses, in the course of the day. Passages still dark; appetite less and less till he ate nothing, and drank nothing the whole day.

Sept. 8. Jalap and aloes, of each one drachm, calomel half a drachm; passages not so dark.

Sept. 9. Jalap and aloes, of each one drachm; magnesia two doses; passages lighter.

Sept. 10 and 11. The same medicines, with the same effect. For some days two or three passages in twenty-four hours.

Sept. 12. Jalap and aloes, of each eighty grains, with magnesia; four or five large, thick, reddish passages, the last one yellow.



Sept. 13. He had taken his medicine late yesterday, and was kept awake all night. This morning felt weak, pulse very weak ; complained that his heart was painfully oppressed. Gave him hot French brandy toddy till his pulse filled ; his colour returned ; his pains were gone ; he wanted to eat and chose thickened milk, which agreed well with him.

Sept. 14. Jalap and aloes, of each forty grains ; no magnesia.

Sept. 15. About daylight a small yellow passage, perfectly natural ; appetite increasing ; no medicine.

Sept. 16. One passage about three o'clock, (afternoon,) large, soft, and perfectly natural in colour. Eats heartily of thickened milk, a pint at a meal, three meals a day : tried beef soup ; it made him feel sick, but produced no other inconvenience ; no medicine.

Sept. 17. From this time till the end of the month took pills occasionally ; in all, of jalap one hundred and fifty grains, of rhubarb one hundred and ten grains, of aloes two hundred grains, and calomel forty grains.

The discharges were in general natural, sometimes somewhat dark ; but the appetite, contrary to all my experience, declined ; so that instead of taking, as on the sixteenth, &c. a pint of thickened milk at a meal three times a day, he was satisfied with half a saucerful twice a day.

This case having been of so long standing, I began to think that the stomach had become so disordered, that although the cause, accumulation of blood in the venous cavity, seemed by the passages (Sept. 12, &c.) to be removed, the proper secretion would not go on ; in short, the old ideas of debility or want of tone be-

gan to perplex me, and without any reason but the idea that his health ought not to be risked upon a theory, which in this case seemed to fail, although it was in this case only in several years practice in this way, I determined to try the bark. He accordingly took some that had been recommended as the best imported for some years into the city of Philadelphia. He continued this for some days, but without any perceptible change, and it was laid aside. At length I discovered that he had, ever since the recovery of his appetite, been in the habit of calling for toddy five or six times a day, even before breakfast. Convinced that this irregularity was the cause of the gradual falling off in his eating, and of the occasional indisposition during the time, I told him that the toddy injured him, and he immediately gave it up. He took not one more glass for weeks. His appetite began immediately to improve; the quantity of thickened milk he required increased every day, till in a few days he took a pint at a meal as before; taking no medicine but occasionally something to keep his bowels open, either jalap and aloes, or rhubarb and aloes.

His appetite continuing to increase, and his stomach feeling perfectly easy, he ventured on mush and milk without my knowledge. I should have advised him against risking it, as he had not for ten years, he said, been able to use it. It however did not disagree with him in the least. He took about a pint of mush and a pint of milk three times a day. Some new corn meal having been bought at market, he even used that, which was so much more likely to ferment than the old, with perfect freedom from sourness, wind, &c.

On one occasion he complained the meal was musty, and there was a little flatulence.

He now began to revive fast, his countenance became animated, his face more full, his eyes lively, and his strength and spirits were fast increasing.

In this state of things he changed his lodgings about the first of November, and for some time continued pretty much as above stated. After a week or ten days however, his appetite declining rapidly, a suspicion arose that he had returned to the use of the toddy. On inquiring into his diet, it was found that instead of milk and mush as had been directed, he had used a thin miserable kind of soup, and that he had returned to the use of toddy, probably in consequence of being disordered by his diet. All the efforts that could be made failed to put an end to this ill-advised indulgence of those with whom he boarded, and likewise of occasional visitors. His appetite was prostrated in the course of a fortnight; the discharges from the bowels increased in number, and became thin and abundant; and although an occasional pill of calomel restrained them, rendering the discharges thick and tenacious, and reducing the quantity and number of them, yet was it so hopeless a business to contend with a case aggravated by improper indulgence, repeated over and over after promises made by all concerned, that there should be no more of it, that he was given up in despair, although extreme solicitude was felt that he should recover. He died about the first of December.

This case is full of instruction. The disease was the sequel of an autumnal fever; in 1815 it returned in

force after a partial recovery, as the sequel of another attack of bilious fever ; and when recovering in Winchester in July 1825, he suffered a violent aggravation of the disease during a sickly time ; all manifesting the identity of the remote causes of autumnal fever and of dyspepsia.

Although he spared no pains in seeking relief from physicians and from different celebrated springs, he never received any essential benefit, but from such medicines as produced consistent passages ; and there is good reason to believe that if he had continued the medicines he would have recovered in 1822.

The plan followed in Winchester by continued evacuations from the venous cavity, relieved him greatly. When he became worse in July, and his case assumed the symptoms of the reigning epidemic, excepting that there was no fever, the same treatment being followed until the discharges became natural, his appetite returned ; and instead of being confined to crackers, and milk and water, as when he commenced taking these cathartic medicines, he ate with perfect freedom from acid, or flatulence, or any other symptom of disordered stomach, thickened milk, and mush and milk, of which for ten years he had not been able to take a mouthful. His relapse and death were clearly caused by improper diet, and the use of brandy.

1839. A small man, of dark complexion, complained of uneasiness in the epigastrium, of an appetite irregular and craving extraordinary things, such as candles ; inordinate also in the quantity of food ; he was costive, and had frequently clay coloured passages.

He had been in bad health for many years ; and had



applied to a number of physicians in different places. He had used the blue pill freely ; it was useful to him when it acted on his bowels.

He was advised to take rhubarb, aloes, and calomel every night, so as to produce about three consistent passages in the course of the following day. He did so for several months, and recovered a natural appetite ; relished his food, and did not desire more than a reasonable quantity ; lost his inclination for candles, &c. and recovered his spirits, colour, and flesh.

He, like the subject of the last case, about the first of August, after getting wet, became worse ; and the season being sickly the disease assumed something of the character of the prevailing epidemic, and required even larger doses than in the former case.

On the first visit he informed me that he had had no passage for several days, notwithstanding that he had been taking several medicines. He took that night at bed-time of scammony and calomel each twenty grains. The next morning he stated that the medicine had operated very often, and that he felt much better. He was advised to keep up the evacuation by taking twenty grains of scammony occasionally, as the discharges were dark. Afraid of the size of the dose he took but half, and failed. It is needless to go into an enumeration of all the medicines taken. Suffice it to make an abstract of the case.

His discharges were dark ; his bowels were very difficult to move ; if a discharge from them was not obtained, he suffered very much from aggravation of all the symptoms, at the same time his complexion becoming darker ; he was therefore continually anxious



and urgent that this should be effected, and if the medicine failed, sent off without hesitation a long distance to give information and get more medicine. Thus situated, it was absolutely necessary to effect a passage, even for present relief: accordingly the dose was continually increased, with the increasing difficulty of moving the bowels common in that season, until at length he took an ounce of scammony in the course of one day to operate on his bowels, the discharges being only three to five in number, and dark green, thick, and tenacious. He took in the course of six weeks ten ounces of scammony, four of rhubarb, near an ounce of calomel, near four ounces of aloes, above two ounces of jalap, and about half a pound of senna and magnesia, with a little crem. tartar.

All this time his passages were dark green, thick, and tenacious; that is, from the fifth of August to the eleventh of September, excepting a day or two in the beginning of the latter month. For the latter part of the time less medicine had the desired effect. On the thirteenth of September there were left for him only twelve boluses of rhubarb, each ten grains. It was then expected that one or two would operate as often as was necessary, viz. about twice in twenty-four hours.

He took little or nothing however from the eleventh to the fifteenth of September; when being griped, and sick at stomach, he took of his own prescribing of rhubarb and calomel ten grains each, which produced six passages of a dark green colour, and he was somewhat relieved of the griping.

In consequence of my being engaged on the sixteenth, when called to visit him, a neighbouring physician was

called on. On the seventeenth, we visited him in company. His passages had become yellow. It was my opinion that he ought still to take rhubarb sufficient to move his bowels gently twice a day; it was thought by the other physician that injections would answer the purpose: it was determined not to rest on the latter entirely, but to use both.

On the nineteenth found the medicine had been refused; the injection had answered the purpose, and he was mending fast.

I saw him no more after this, but he recovered his flesh, and strength, and looks, and was in better health than he had for a long time been.

1840. It is proper to observe that these extraordinary doses have not been necessary in any other cases than those recited. In general four pills of rhubarb, aloes, and calomel, or of jalap, aloes, and calomel, act sufficiently. To these common doses no one would object, if good arise from the use of them. If objection be made to the extraordinary doses, the following is the point to be decided. When ordinary doses fail to produce an effect which when produced will certainly be followed by improved health, shall we give extraordinary doses, or allow the patient to continue to suffer? The decision rests on the same grounds in this case as in autumnal fever. Evacuating bilious matter is necessary. If one, two, or three doses fail, we do not stop, but persevere until the operation is effected, without limit as to quantity. If we succeed in purging the patient, he recovers; if not, he dies; and numbers are now saved by perseverance who but a few years ago would have been left to die.

1841. The patient whose case is stated at 1813, in the course of several years had applied to a number of physicians, all of whom called the disease dyspepsia. They had endeavoured to cure him with bitters; but these he thought increased the disorder, or at least the burning of his stomach: he had been salivated once or twice; this injured him, making him weaker: they had latterly been content to advise him to keep his bowels open by the occasional use of rhubarb.

It is needless to recapitulate the medicines given. Briefly, he took in the course of twelve months above eight hundred pills of jalap, aloes, and calomel, or of rhubarb, aloes, and calomel, according to circumstances, always having in view the rule to obtain about three consistent passages in every twenty-four hours. Sometimes the calomel was omitted. In all this time his passages were generally dark, sometimes black, often green, rarely yellow. When they became yellow he stopped a day or two, sometimes a week; but returning indisposition, under a continuance of the remote cause, (sitting at work constantly and late at night,) drove him to the pills; and he said he could not go on without them; they enabled him to work, and support his family.

The event was that he became quite fat and hearty; and at this time, December 1825, rarely ever calls for a dose, though he sits closely at work: he can eat any thing he pleases; and his spirits are not only good, but high. He continues well in 1827.

During the progress of his case it was sometimes doubtful whether he would ever get through with it, being now and then reduced to the necessity of going

to bed ; when he had a severe spell, somewhat like some of the cases before stated, but of much shorter duration : he generally was able to go about, and even to work moderately ; but it seemed as if there would be no end to the black nauseating and acrid bile, and I had thoughts of advising him to go to a place with a better air.

It is to be observed that he took no tonic whatever, nor any other medicine but the pills.

1842. A lady ten or fifteen years ago began to be troubled with vertigo ; pain in the head, and the sensation of a tight ligature about it, as if by a chord ; ringing noise in her head ; and sometimes she felt as if she should fall. She was also costive.

After some years, viz. five or six years ago, she had, in addition to the above, dyspeptic symptoms ; which after a further time were followed by nephritic affections, which were very severe. She had also severe cramps in her limbs, and sometimes in the abdominal muscles, I understood from her account. These were sometimes so severe that she was obliged to get out of bed in the night and use the warm bath. She also had palpitations, and sometimes started from her sleep and rose up in great alarm.

The affections of the head, the stomach, and the kidneys, were generally all severe together ; but sometimes the stomach, and sometimes the kidneys were affected alone. Her physician said she had a complication of diseases.

She had received occasional benefit in the beginning of her ill health from jalap and calomel, when the affection of the head was more distressing than



common. When the stomach and kidneys became affected she took cream of tartar alone, or with salts, and hartshorn and lavender occasionally; and also muriated tincture of iron, and other preparations of iron.

During the time she was using these medicines her health became worse and worse. About three years ago changing her residence and coming to reside in Winchester, she desired my assistance.

I found her exceedingly dyspeptic; her head was excessively disordered; she was occasionally cramped; in a constant tremor; very much emaciated; and under the necessity of being assisted from place to place in the house.

She commenced immediately with the pills of jalap, aloes, and calomel. She took every morning and evening for two months, enough to operate on her bowels; and for six months she took the pills every day or every second day. The result is that her head is quite relieved; the cramp and the tremor are entirely gone; the nephritic affections are gone; instead of being confined to crackers, and cheese, and meat, she eats just what she pleases without the slightest inconvenience; instead of great emaciation, her face has become quite filled up; instead of being helped about the house, she takes long walks to visit her friends.

She has taken not a solitary dose of tonic medicine, and she now takes nothing except occasionally and rarely a few pills. She finds the palpitation is the first of her old symptoms disposed to reappear, and immediately on feeling it after fatigue, &c. &c. a few pills puts it down, and the disease gathers no head.



1843. These cases are sufficient to prove that dyspepsia is to be cured by medicines which produce free evacuations from the venous cavity as above mentioned. The following cases go further, and show not only that such evacuations are effectual in restoring health to dyspeptic persons, but also that tonics when they are salutary, sometimes, and probably often, act in the same way.

1844. A friend of mine for many years had his stomach excessively disordered, insomuch that he was altogether a man of infirmities. Meeting with him some time ago, and finding he was quite recovered from his dyspepsia, I inquired how he was restored. He answered by taking bark by advice of a physician. This was prescribed as a tonic. Having had in many instances reason to believe that medicines given as tonics had benefited the patient by operating on the bowels, I asked him what particular effect the bark had had on him: he replied it purged him every day for three months, during which time he took it daily. The bark alone cured him; and the manner of its operation plainly confirms the doctrine advanced in these pages.

1845. Another dyspeptic was cured in a similar manner. He had used tonics in the freest manner. He had been a most severe sufferer, with acid eructations, vomiting of acid and frothy matter, severe pains, &c. &c. He had by my advice many years ago used columbo in profusion, carrying it in his pocket and using it at all times. Meeting with him latterly, after several years' absence, and finding him florid, hearty, and eating as he pleased, he was asked in what

manner he had been restored to health. He informed me that he had been ill with a fever, and that his physician gave him bark and Epsom salts combined ; that he had observed that his stomach was very much benefited by it ; and that after his recovery, when the dyspepsia began to return, he had taken bark and Epsom salts for a considerable time, which cured him.

1846. In a case which occurred some years ago, the patient took pills which I prescribed as tonic pills, but they operated on the bowels uniformly ; a circumstance which I did not learn for some time. They were made of aloes, sulphate of iron, and asafœtida ; and were very useful.

1847. I have found in my inquiries of dyspeptic patients who had been benefited by drinking the water of different public springs, that they generally purge, and unless they do so they are useless. The Bedford spring is the most celebrated for dyspeptics, and that is a purging water, containing Epsom salt in sufficient quantity to prove laxative.

I make no apology for taking up so much room on this subject. It is one of vast importance ; thousands are, I am persuaded, suffering ills easily remedied. If patients in these long continued, inveterate cases, have been so far benefited, what may not be expected in cases in which the patient is comparatively strong, his vigour unimpaired, and the stomach, if relieved from the load which oppresses it, ready to resume its healthy state ?

1848. The only cases thus treated in which the patients did not recover are given above. One of these was utterly despaired of long before she was brought

to Winchester, on which account it was with great reluctance her friends brought her (1836).

The other had little more hope (1838). They were however both entirely relieved of the dyspeptic symptoms. These cases therefore, although from the causes mentioned they terminated fatally, evidently confirm the truth of the doctrine, and the correctness of the practice deduced from it; and there is even strong ground to believe that, but for the folly of the attendants in one case, and the obstinacy of the patient, and the weakness of his friends in the other, they would both have recovered.

1849. Affections of the stomach therefore, viz. nausea, vomiting, acid eructations, flatulence, heart-burn, pain in the stomach, water-brash, all combined, or any separately, are to be treated by such medicines as will procure three or more consistent passages in the day. The best mode of effecting this object has been fully stated already (1566, &c. 1834, &c.).

1850. Emetics are sometimes very useful in dyspepsia, not only by throwing off a quantity of acid matter; but, by exciting the action of the heart, sending the blood to the surface, and consequently lessening the quantity accumulated in the interior veins, they produce lasting benefit.

## CHAPTER XXV.

### OF NEPHRITIS.

1851. This name is applied to the following assemblage of symptoms ; pain in the region of the kidneys ; scanty and high coloured urine, scalding in passing, and occasioning considerable pain ; sometimes the urine is so scanty as to pass by drops, inducing a belief in the patient that there is a suppression ; the pain in passing or attempting to pass the urine in such circumstances is excessive ; the urine is sometimes tinged with blood ; and in some instances blood apparently pure passes from the bladder. Sometimes minute chrystals of the acids and salts of the urine pass through the urethra, producing the feeling of sand when rubbed between the finger and thumb ; these particles are sometimes so large as to pass with difficulty, to stick fast in the urethra, or to be retained in the bladder, constituting the stone in the bladder.

1852. It is evident from an attentive consideration of this description, that pain in the region of the kidneys, diminished secretion of urine, and the discharge of blood from the urethra, are the leading symptoms ; or *the effects* for which a cause is to be assigned. The other symptoms, viz. scalding, &c. are produced by the diminution of the secretion of urine, in consequence of which that fluid contains an unusual proportion of its peculiar acids and salts. Hence the urine is high

coloured and acrid, deposits chrystals, and excites pain in passing.

1853. Pain in the kidneys, diminished secretion, and the passage of blood from the vessels of these glands, are obviously such effects as are readily produced by accumulation of blood in the venous cavity, and particularly that branch seated in the kidneys.

1854. The actual existence of this accumulation in nephritis is manifest from the presence of other effects of the same state.

Cullen says, "The nephritis is almost constantly attended with frequent vomiting, and also with costiveness, and colic pains."<sup>1</sup>

Boerhaave enumerates among the symptoms common in nephritis, "iliac pains, vomiting of choler, (bile,) and continual belchings."<sup>2</sup> All these are effects of accumulation of blood in the venous cavity.

Most of these symptoms I have observed; and in addition to these have found that the discharges are almost universally green, or dark.

I had a case of nephritis about three years ago which was preceded for a considerable time by an enormous flow of urine. The patient discharged every day five or six times as much as usual. At length pain in the kidneys came on, with scanty urine, &c. In this case it is evident that the fulness of blood produced an increase of the secretion; which continued until there was such an accumulation of blood as to suppress it.

1855. It is known also from the presence of those symptoms which indicate weakened action of the heart,

<sup>1</sup> Cullen's First Lines, &c. CCCCXXV.

<sup>2</sup> Boerhaave's Aphorisms, p. 993.



and consequently accumulation of blood in the venous cavity. An attack of nephritis is preceded by paleness and weak pulse. In the case just alluded to, on the day preceding a second attack, I observed the patient was quite pale, though usually of a very florid complexion.

1856. It is known also from the effect of the remote causes which have been ascertained, these being known to produce weakened action of the heart, and consequently the accumulation in question. The causes alluded to are colds, falls, &c.

1857. Exposure to severe cold I have known to produce it several times in the same person. The attack so regularly and so immediately followed the exposure, that no room was left for doubt. This is a very powerful cause of weakened action of the heart.

1858. I have had a case produced by a fall from a horse. External contusion, or strains of the muscles of the back, have been enumerated by Cullen as remote causes of nephritis; and a fall may be alleged to have thus produced the disease. It is not to be believed, however, that a fall can produce contusion of so deep seated a part sufficient to excite pain in it, without almost destroying the integuments, &c.; nor that the strain of a muscle can produce pain in the kidneys.

A fall is a powerful cause of weakened action of the heart; and in the case alluded to, general indisposition and a languid state preceded the attack, but no contusion or strain was experienced.

1859. Intemperance in the use of spirituous liquors is another remote cause of nephritis. This likewise produces weakened action of the heart.

1860. Authors have mentioned several other causes of this disease, but as far as I can see without the slightest foundation. Besides contusions, and strains, Cullen has mentioned hard riding, acrid matters conveyed to the kidneys, and calculi in the passages.

I have known great numbers ride hard and long without being affected with nephritis: indeed, considering the fact that the people of this country spend so much of their time on horseback, it cannot have much effect, or we should see very many cases, and principally among men; whereas the number of cases is small, and chiefly among women.

1861. We have no knowledge of acrid matter existing in the blood in quantity sufficient to produce such an effect; and there is no reason given for believing in the existence of such a cause.

1862. Calculi in the passages are manifestly an effect, not a cause of the disease. In the majority of instances they do not appear at all. When they do appear and pass off, the symptoms are not removed; the pain produced by the actual passage is relieved, but the other symptoms do not immediately disappear. Even a fit of the stone, as it is called, is not the effect of the stone. If it were, the symptoms would be continual until the stone should be extracted. But the very same symptoms existed before it had descended into the bladder. One of the effects of the cause of those symptoms, is a calculus which drops into the bladder and is there retained. After this the patient is, as he was before, subject to occasional attacks of nephritis on exposure to the remote causes. Avoid the remote causes, remove the proximate cause

of the symptoms, and the stone often lies for years without giving any uneasiness. Hence it is that certain medicines have acquired the reputation of dissolving the stone: they cure the disease of which it is an effect, and the stone is then harmless.

1863. The remote causes of nephritis therefore, are such as produce weakened action of the heart; weakened action of the heart, necessarily followed by accumulation of blood in the venous cavity, precedes an attack of the disease: this accumulation therefore exists during the disease, and the symptoms observed are effects of this state of the venous cavity. Accumulation of blood in the venous cavity is therefore the proximate cause of nephritis.

1864. This conclusion is confirmed by the fact that this disease sometimes alternates with dyspepsia, as in one of the cases stated above (1813); the same proximate cause producing both diseases, which differ only in the grade of certain symptoms.

In dyspepsia the principal symptoms are those of disordered digestion, the stomach being more affected than any other part of the venous cavity; but the symptoms of nephritis are in a greater or less degree frequently present (1813).

In nephritis the principal symptoms are those of disordered secretion of the kidneys; but the stomach is also affected with nausea, vomiting, and eructation (1854).

It is confirmed also by the statement of Boerhaave, that nephritis is carried off "by the copious flowing of the piles in the beginning of the illness."<sup>1</sup> This spon-

<sup>1</sup> Boerhaave's Aphorisms, p. 996.

taneous evacuation directly reduces the fulness of the venous cavity, and removes the cause of the complaint.

It is supported by Cullen's argument respecting the proximate cause of the symptoms of dyspepsia (1796). These symptoms of nephritis (1851) also frequently concur in the same person, with those given as symptoms of dyspepsia (1813), "therefore they may be presumed to depend on one and the same proximate cause" (1796).

It is confirmed finally by the success attending artificial evacuations from the venous cavity, as we shall now proceed to show.

### *Treatment of Nephritis.*

1865. In general there is little increased action of the heart; the patient is often pale and cool. If the pulse be strong, bleeding ought not to be omitted. If it be weak, blood ought to be drawn if the pain is urgent, provided it can be done without weakening still further the action of the heart.

1866. In every case cathartics are necessary, and are the main dependance. Like the rest of the affections dependant on accumulation of blood in the venous cavity, nephritis is immediately relieved by effecting such evacuations as have been frequently mentioned. In common, the ordinary dose of the pills of rhubarb, aloes, and calomel, or of jalap, aloes, and calomel, answers the purpose; occasionally large doses of active medicines become necessary. The evacuations during the use of these medicines are usually dark, green, &c. and if continued the cure is complete.

1867. This mode of practice will be found so suc-

cessful, that these cases will rarely give any trouble. Those affections of this kind, which women are very apt to complain of under the name of *gravel*, are, for the most part, carried off by a few doses.

1868. It is needless to go into a statement of cases to show the propriety of this practice, inasmuch as it is not inconsistent as far as it extends with the established practice in this disease. I would only insist, that, excepting bleeding when necessary or advisable, purging is all-sufficient to cure; actively, if the pulse be strong; moderately, in the manner advised, if the pulse be weak or moderate.

1869. Two or three cases only shall be stated as being somewhat remarkable.

A boy of fifteen years of age had from his childhood suffered excessively with nephritis. The water passed by drops with excessive pain; and for some time previous to my acquaintance with him, he had frequently passed calculi of a soft gritty consistence. Sometimes they were so large as scarce to pass, and it was generally believed that he had a stone. Under this impression his mother applied to me to perform the operation.

He was advised to try the effect of medicine before submitting to so severe an operation. He had great objections to taking medicine, and did not apply until he had a severe attack, when he took a large dose of jalap and calomel in powder, having an utter aversion to pills. This was taken in the height of an attack, and the relief was so great as to surprize him, and to induce him the next time to make earlier application. He took on the first day of the next attack



the same dose, and the consequence was that the fit was ended almost at once. This induced him to determine to take medicine more freely. He however took but two doses ; but such was the effect of the few doses he had taken, that the fits returned but once in many weeks, instead of every ten or twelve days, and were much less severe.

A relation of his about to go to the northward took him with him. He was there advised to have the stone extracted ; and the operation was successfully performed. In the ensuing autumnal season however, he again experienced some of the symptoms he had so frequently experienced, viz. pain, heat of urine, and sand in the urine.

The occurrence of these symptoms after the extraction of the stone, confirms what has been said above, that the stone is not the cause, but an effect of the disease (1862) ; although it cannot be doubted that the stone, which was rough, aggravated the symptoms when the occasional operation of the remote causes produced them.

1870. It is worthy of notice in this case, that even after a stone had been formed in the bladder, and the patient had suffered severe *fits of the stone*, as they have been called, he was greatly relieved by cathartics.

1871. A young lady who had had frequent attacks of nephritis, at length had a most severe one. The pain and all the other symptoms were excessive for several days. She took the pills of jalap, aloes, and calomel, so as to operate freely every day ; the discharges were dark green. The severity of the symptoms soon abated, and she gradually recovered.

In consequence of exposure to severe cold, she had a return of the symptoms once or twice ; but they were speedily removed by using the same remedy. She occasionally took a few pills for some time, and has perfectly recovered, and has not had for a long time any return of the disease.

1872. The following case is stated for the sake of the remedy, which gave extraordinary relief.

An aged man was for many years a severe sufferer from a stone in the bladder, which was so large and heavy that he could feel it roll when turning suddenly over on his side. He was when he applied, so severely afflicted that he could not without extreme difficulty ride a mile. He had continual pressing calls to make water, which passed with extreme pain, and frequently was bloody. In this situation he requested me to procure for him the ingredients for the following mixture, which he was convinced from previous use would greatly relieve him. The ingredients are, two ounces of spermaceti ; one ounce of soap, such as Castile soap ; of curcuma in powder, half an ounce ; of aniseed oil sixty drops ; and of syrup or honey enough to mix the whole into a soft mass. Of this mixture he took a piece of the size of a nutmeg three times a day, and in a very short time he was so greatly relieved, that he rode forty miles without any material inconvenience. I do not recollect how many times the above quantity was made up for him, but I think not more than three times.

I do not know what particular effect this medicine had on the patient.

1873. When the pain is severe, and the patient's

hands cold, and the pulse weak, an emetic will often afford present relief by exciting the action of the heart, and sending the blood to the surface ; but for lasting benefit the dependance is on cathartics, continued until the discharges become natural (1622).

## CHAPTER XXVI.

### OF GOUT.

1874. This disease has attracted the attention of physicians in a very remarkable manner. There seems to be an idea of something sacred and mysterious in its nature, as if it were not to be discussed as that of other diseases. It is however evident enough, that like all other morbid affections it has its causes, it is produced ; and the manner in which those causes produce the effects we see, is as proper a subject of inquiry in this as in other morbid affections.

1875. In order to form a proper judgment of the disease, the first thing is to have an exact idea of what is meant by the term gout. Great confusion has been produced in the inquiry into the pathology of this disease, by using the word gout to express both the disease and its cause. In common acceptation the disease is signified by the term : but from the way in which authors express themselves, it is evident that this name is also given to the cause. We shall consider the word as signifying the disease alone, or the assemblage of symptoms constituting that disease. To determine its pathology we must ascertain the manner in which the remote causes produce these symptoms.

1876. Gout is said by authors to be regular, or irregular : the irregular is again divided into atonic, re-

trocedent, and misplaced gout.<sup>1</sup> We shall contrast these so as to show the points of resemblance and of difference.

1877. In atonic gout, the morbid symptoms which appear are chiefly affections of the stomach ; such as loss of appetite, indigestion, and its various circumstances of sickness, nausea, vomiting, flatulence, acrid eructations, and pains in the region of the stomach ; with pains in several parts of the trunk and the upper extremities of the body, often relieved by discharges of wind from the stomach ; costiveness also commonly occurs ; but sometimes a looseness with colic pains ; palpitations, syncope, and difficult respiration likewise occur. These symptoms are accompanied by dejection of mind and anxious attention to the feelings ; also head-ach, giddiness, and apoplectic and paralytic affections. There is no increased action of the heart, and no inflammatory affection of the foot in this kind of gout.<sup>2</sup>

1878. In the regular gout there is an unusual coldness of the feet and legs, with numbness and prickling sensation in them ; an unusual turgescence of the veins ; torpor and languor of the whole body ; diminished appetite, flatulence, and other symptoms of indigestion. These symptoms continue for several days, sometimes for a week or two, before a paroxysm comes on.<sup>3</sup>

1879. The paroxysm begins commonly with more or less of cold shivering, and a pain in one foot ; most commonly in the ball of the great toe, but sometimes in other parts of the foot. The shivering is followed

<sup>1</sup> Cullen's First Lines, &c. DXVIII.

<sup>2</sup> Ibid. DXIX.

<sup>3</sup> Ibid. DV. DVI.



by a hot stage, and with the rise of the fever the pain increases until midnight; after which they gradually remit, and, having continued twenty-four hours from the first attack, commonly cease almost entirely on the appearance of a gentle sweat.<sup>1</sup>

1880. For some days there is every evening a return of considerable fever and pain, which continue with more or less violence till morning. After continuing in this manner for several days, the disease sometimes goes entirely off, and does not return for a long time.<sup>2</sup>

1881. When the disease has often returned, the pains are commonly less violent than at first; but the patient is more affected with sickness, and the other symptoms of the atonic gout<sup>3</sup> (1877).

1882. In the retrocedent gout, after the anorexia, flatulence, and other symptoms of indigestion have continued for some days (1878), the inflammatory affection of the joints comes on in the usual manner (1879), but does not rise to the usual height, or continue the usual time, but suddenly and entirely ceases; on which sickness, vomiting, and pain in the stomach, syncope, difficult respiration, and apoplexy, or palsy occur<sup>4</sup> (1877).

1883. It is evident from a comparison of the symptoms of atonic gout (1877), with those of regular gout (1878), that the symptoms constituting the former are also the symptoms of the latter for some days or weeks; that the difference between atonic and regular gout consists solely in the additional symptoms, in-

<sup>1</sup> Cullen's First Lines, &c. DVIII.      <sup>2</sup> Ibid. DIX.

<sup>3</sup> Ibid. DXIII.

<sup>4</sup> Ibid. DXXI.

creased action and inflammation of the foot, which at length come on ; that while the constitution is vigorous, the increased action continues for some days (1879); but that as soon as the constitution is weakened, there is less increased action of the heart, and a greater degree of the symptoms of atonic gout (1881).

1884. The gout therefore begins with the symptoms of indigestion, &c. (1877. 1878. 1882); sometimes there is no increased action of the heart; and sometimes there is, with regular periodic exacerbations and remissions for some days (1880). When there is no increased action, the disease is called atonic gout; and when there is, it is called regular gout.

1885. This difference, it is evident, depends on the vigour of the constitution of the patient; 1, the very symptoms of atonic gout are those of a broken and infirm constitution (1877); 2, in the commencement of the attacks of gout, while the patient's constitution is yet vigorous, the increased action of the heart, and the inflammatory affection of the foot appear (1879); 3, when by repeated attacks the constitution is broken, and the symptoms of atonic gout, marks of infirm health, increase, the increased action, and the pains are less violent than they formerly were (1881).

1886. The difference between regular and atonic gout, consisting solely in the presence or absence of increased action (1884), and depending on the constitution of the patient, whereby the infirm and the vigorous are in that one particular differently affected (1885), it is evident that the difference is in the person affected, and not in the disease; which therefore is the same in both cases.

1887. This view is supported by what occurs in retrocedent gout. This form of the disease begins like regular gout, with the symptoms of atonic gout (1882); increased action comes on as in regular gout; but suddenly ceasing, leaves the patient with the symptoms which existed before the increased action came on; viz. with the symptoms of atonic gout (1877).

It progresses for a time just as the regular gout; but the increased action of the heart suddenly ceasing, it *turns back*, as the name retrocedent indicates, to the form of atonic gout. In the beginning it is regular gout, or only to be distinguished from it by the weaker grade of action (1882), and not by that from regular gout in persons who have often had the disease (1881); in its termination it is atonic gout.

It is evident cases must occur in which it is difficult to pronounce whether a patient has atonic gout or not, because there is no such thing as fixing the precise grade of increased action, which shall prevent its being considered atonic (1881). If it be pronounced not atonic, as it is impossible to say whether the increased action will or will not suddenly cease, it cannot be determined whether the patient has retrocedent or regular gout. This uncertainty throughout shows the whole is one disease.

1888. There is indeed no other distinction between the different forms than that of grade of action. Thus, there is one grade in which there is no increased action (1877); a second in which the increased action is weak, and does not long continue (1882); a third in which, though weak, the action does continue (1881); and a fourth in which the action is strong (1878. 1879.

1880). There is no attempt to distinguish between the two last. The difference between the second and third (1882 and 1881) is solely that of the continuance of the action. In both the action is weak; in one it fails (1882), and the symptoms of atonic gout appear alone; in the other it does not entirely fail, but is accompanied by the same symptoms of atonic gout (1881). There is no criterion, given by those who make the distinction between them, but that of the increased action failing in one and not in the other (1881. 1882). The difference between the first and second (1877 and 1882) is that between no observable action, or no action worth attending to, and weak action which shortly fails.

1889. There being no other distinction between the different forms of gout than that of difference of grade of action of the heart (1888); if this constitute difference of kind, as grades of action are infinite in number, the kinds of gout are infinite in number, which is absurd: or, if difference of grade of action constitute no essential difference, there is no essential difference between the different forms of gout.

1890. Gout is said to be sometimes misplaced, and sometimes translated. Misplaced gout is, in gouty persons, the affection of some internal part with pain. It is presumed to be gout, and to be produced by gouty diathesis or disposition, because it occurs in persons having such a disposition, and every symptom perceived, or supposed "to depend upon that same disposition," is considered "as a symptom or case of the gout."<sup>1</sup>

<sup>1</sup> Cullen's First Lines, &c. DXVII.

Cullen says, "What internal parts may be affected by the misplaced gout I cannot precisely say, because I have never met with any cases of the misplaced gout in my practice; and I find no cases of it distinctly marked by practical writers, except that of a pneumonic inflammation."<sup>1</sup> My experience, limited to be sure, agrees however entirely with this. I have never seen a case of what Cullen would call misplaced gout, in any other internal part than the lungs, and that in but two instances. In one case the gouty diathesis was very strong; the patient had been for some days in a very anxious state of mind, arising from being engaged in a very important suit of doubtful termination, his accommodations at a tavern were indifferent, when compared with those of his own house, and he was in particular exposed for the whole time to the operation of cold in a considerable degree, by standing on the brick pavement of the court-house in damp muddy weather.

In the other case the patient had had the gout for forty years. He had been suffering for weeks with gout in his feet and hands, when he was violently attacked in the right side. There was constant severe pain, which was greatly increased by inspiration. The pain in his feet and hands continued unabated. His countenance was flushed, and his pulse considerably tense.

These cases differ in nothing from the ordinary paroxysm of gout, but in the *seat* of the local inflammation. In most cases the feet are affected; sometimes the hands; in a few cases the lungs; and this last af-

<sup>1</sup> Cullen's First Lines, &c. DXXIII.



fection sometimes appears in company with that of the hands and feet. In all other respects the symptoms are precisely the same ; and the treatment is the very same, only requiring more decidedly the use of bleeding, in consequence of the greater importance of the part affected. Thus, in a paroxysm of regular gout, when the inflammation is very violent and pressing for relief, Cullen says, “in the first paroxysms, and in the young and vigorous, blood-letting at the arm may be practised with advantage ; but he is persuaded that the practice cannot be repeated often with safety.”<sup>1</sup> Whereas when the lungs are affected, “the disease is to be treated by blood-letting, and by such other remedies as would be proper in an idiopathic inflammation of the same part.”<sup>2</sup>

1891. Gout is said to be translated, when after a foot has been affected the inflammation ceases, and some internal part is affected with pain. There are two cases of this translation mentioned, viz. pain in the rectum, with or without hemorrhoids ; and strangury, &c.<sup>3</sup> It is plain that the only difference between misplaced and translated gout is, that in the former some internal part is affected, and no external part ; and that in the translated gout an external part is first affected, and, that ceasing, an internal part is attacked. It appears, however, from the second case stated in the last paragraph, that in misplaced gout the external parts likewise are sometimes affected, and even continue affected after the internal part is attacked ; there is therefore no essential difference between these

<sup>1</sup> Cullen's First Lines, &c. DLXII.    <sup>2</sup> Ibid. DLXXXII.

<sup>3</sup> Ibid. DXXIV.

forms of gout. Cullen even doubts "whether to refer those affections to the retrocedent, or to the misplaced gout."<sup>1</sup>

As therefore misplaced and translated gout are not essentially different, and as the former differs in nothing from regular gout but in the seat of the inflammation (1890), the atonic, the regular, and the retrocedent gout, comprehend all the forms of that disease.

1892. It has been shown (1889) that there is no essential difference between the different forms of gout; it is therefore evident that all these forms constitute one disease, and consequently all the symptoms of the different forms are symptoms of that disease, and effects of the cause of gout.

1893. To determine the pathology of gout, we must ascertain how the remote causes of that disease produce the symptoms.

1894. Cullen mentions as the remote causes of gout, a sedentary and indolent manner of life, a full diet of animal food, the large use of wine, or of other fermented liquors, excess in venery, much application to study or business, night watching, excessive evacuations, the ceasing of usual labour, the sudden change from a very full to a very spare diet, the large use of acids and acescents, and cold applied to the lower extremities.<sup>2</sup> He also mentions indigestion as a remote cause of gout. But as the symptoms of indigestion are mentioned as the first symptoms in regular gout, and the principal symptoms in atonic and retrocedent gout, indigestion cannot possibly be a remote cause of gout. Rush adds to these great fatigue, strong tea and coffee, and domestic and public vexation.

<sup>1</sup> Cullen's First Lines, &c. DXXIV.    <sup>2</sup> Ibid. DII. DIII.

There are strong grounds for adding miasmata to this list. Rush says, "A bilious constitution of the air so often excites the peculiar symptoms of gout in persons predisposed to it, that it has sometimes been said to be epidemic. This was the case, Dr. Stoll says, in Vienna in the years 1782 and 1784. The same mixture of gouty and bilious symptoms was observed by Dr. Hillary, in the fevers of Barbadoes."<sup>1</sup>

The same has been observed by many other physicians. Cullen in his *Nosology* mentions from Morton a gouty tertian, *Tertiana Arthritica*; also from Musgrave a gouty quartan, and a fever of the same kind from Werlhoff.<sup>3</sup>

In gout also, the fever is milder or more severe according to the prevalence of miasmata. Rush says, "It is remarkable that the gout is most disposed to assume a malignant character during the prevalence of an inflammatory constitution of the atmosphere. This has been long ago remarked by Dr. Huxham. Several instances of it have occurred in this city since the year 1793."<sup>4</sup>

1895. It is plain that these remote causes do not produce the symptoms of gout directly; but that they produce an effect on the system, which becomes in turn a cause of another effect, and this of another, or of others, and so on until the effects which are the symptoms of the disease are produced; the remote causes of gout, and the whole train of symptoms constituting that disease, with the intermediate causes, being a chain of causes and effects (18).

<sup>1</sup> Rush's Works, Vol. 2, p. 160.

<sup>2</sup> Cullen, *Synop. Nosol.* Tom. ii, p. 51.    <sup>3</sup> *Ibid.* p. 60.

<sup>4</sup> Rush's Works, Vol. 2, p. 153.

1896. Hence it is evident, that in order to ascertain how the remote causes produce the symptoms of gout, we must inquire into the effects of these remote causes; next, into the effects of those effects, or new causes, and so on until we arrive at the ultimate effects, the symptoms in question; or, that we must inquire into the causes of these symptoms, and into the causes of those causes, until we arrive at the remote causes (19). Taking the former course, we shall inquire into the effects of the remote causes, &c.

1897. The effect of the agents known to be remote causes of gout (1894), has been already fully shown (chap. ii. iii.) to be weakened action of the heart. Cullen mentions most of the remote causes as debilitating,<sup>1</sup> and speaks of loss of tone as preceding the gout;<sup>2</sup> and of general torpor and languor existing for several days, or a week or two, before a paroxysm of gout.<sup>3</sup> He also mentions several symptoms which occur during that time, such as the ceasing of a sweating with which the feet had been commonly affected before, an unusual coldness of the feet and legs (1878,) and some which immediately precede a paroxysm, viz. more or less of cold shivering (1879), all of which indicate weakened action of the heart (83).

Rush's statements are to the same amount. He says, "the gout is always induced by general predisposing debility."<sup>4</sup> This is of course produced by the remote causes.

1898. The effect of the remote causes of gout therefore is weakened action of the heart; and Cul-

<sup>1</sup> Cullen's First Lines, &c. DIII.    <sup>2</sup> Ibid. DXXXII. DXXXIII.

<sup>3</sup> Ibid. DVI.

<sup>4</sup> Rush's Works, Vol. 2, p. 148.

len's testimony fully establishes the fact that such weakened action does exist in the commencement of that disease (1897).

1899. Weakened action of the heart, we have heretofore fully shown, necessarily produces an accumulation of blood in the venous cavity (1218). This accumulation is also shown to exist in this disease by the same marks which indicate weakened action of the heart (1219. 1897).

1900. Accumulation of blood in the venous cavity is therefore another link in the chain of causes which produce the gout; and when we inquire what are the effects of this state of the system, we find that the symptoms which constitute this disease are the most striking among them. Thus, all the symptoms of atonic gout (1877), which are also the symptoms of regular and of retrocedent gout, excepting only the increased action of the heart which takes place in greater or less degree in these forms of gout, are effects of accumulation of blood in the venous cavity.

1901. The manner in which the increased action is produced is obvious, if we attend to the circumstances of the patient immediately preceding its access. It is admitted he is in a state of general debility; the question is, how is the increased action produced? Cullen has recourse to the *Vis Medicatrix Naturæ* to account for it, considering it salutary. This, it will be admitted, is saying nothing, or perhaps worse; it is taking for granted that this inflammatory action is salutary, and considering it as produced by the bountiful interposition of nature to relieve the patient; when it is so clearly the effect of intemperance, that



its returns, in those subject to it, are just in proportion to the temperance or intemperance of the patient.

1902. Rush, after stating that the exciting causes are the remote causes acting suddenly or forcibly, adds, they are either stimulant or sedative. Of the former he mentions various kinds of excess, which evidently indirectly but rapidly debilitate; of the latter, a number which directly and rapidly debilitate. "The latter exciting causes are sudden inanition from bleeding, purging, vomiting, fasting, cold, a sudden stoppage of moisture on the feet, fear, grief, excess in venery, and debility left upon the system by the crisis of a fever.

All these causes," he says, "act more certainly when they are aided by the additional debility induced upon the system in sleep."<sup>1</sup>

1903. The same question presents itself here. How in this state of debility, is the increased action and the inflammation of regular gout produced? How can a *sedative* be an *exciting* cause? Rush attributes it to the abstraction of some of the stimuli increasing the force of those which remain. This, we must say, cannot be sufficient to produce such excessive action. No one desiring to stimulate would ever think of abstracting stimulus in order to increase the effect of that which was left. Nor would any one succeed in the attempt.

1904. Our view of the case is, we think, fully supported by the statements made.

The gout is preceded by general debility, which is produced by the remote causes. In this state, the

<sup>1</sup> Rush's Works, Vol. 2, p. 150.

remote causes acting suddenly, or with greater force, prove exciting causes ; that is, produce a paroxysm. The question is, how ?

The remote causes are all directly or indirectly debilitating (1897) ; they all produce weakened action of the heart. Weakened action of the heart produces unavoidably accumulation of blood in the venous cavity. The existence of this state of the system is evinced by the marks and the effects which cannot be mistaken. Its effects appear in the disordered state of the head, stomach, liver, kidneys, &c. all of which symptoms constitute what is called the general predisposing debility.

When the remote causes act suddenly, or with greater force than common, the effect must correspond ; the action of the heart is suddenly weakened, the fulness of the venous cavity is suddenly increased, and increased action follows in consequence of the great increase of stimulus applied directly to the heart, in consequence of this sudden accumulation.

Here is a sufficient stimulus to produce the effect ; it is applied immediately to the active part ; it is increased in quantity *in that part* : the very action it excites disperses it however, and therefore the increased action subsides ; the excessive action is however followed by diminished action, which produces a renewal of the accumulation of the stimulus, and of the increased action : this process is repeated for a longer or shorter time in proportion to the vigour of the patient ; sometimes running on a regular course for weeks, sometimes falling back into inaction in a few days, as in retrocedent gout.

1905. The chain of causes therefore which produce the symptoms of gout are the following ; 1, the remote causes already stated at length (1894) ; 2, weakened action of the heart, the inevitable effect of the operation of those causes (1898) ; 3, accumulation of blood in the venous cavity, the necessary consequence of weakened action of the heart (1899) ; which last is the proximate cause of the assemblage of symptoms which constitute gout (1877, &c. 1900).

### *Treatment of Gout.*

1906. The gout has been generally considered as incurable. After all, it is said, the gout will return and a cure is impossible. The gout will no doubt return, that is, the patient will suffer another and another attack, *if he continue to expose himself to the remote causes which produced the first.* But to say the gout is not cured, when it is carried off in two or three days, because it returns again by the perseverance of the patient in living luxuriously, and drinking freely, is not more reasonable than to say a pleurisy is not cured when all the symptoms are removed in a few days by bleeding, &c. because the disease will return again if the patient expose himself to the remote cause of that disease. The gout can be effectually cured ; and many cases of its entire removal are related by physicians, of which some shall be mentioned.

1907. In order to the cure it is necessary, as in other forms of disease, to remove the remote causes and the intermediate causes that may be operating, viz. weakened action of the heart, and accumulation of blood in the venous cavity ; and when the action of the heart

is excessive, its reduction is as necessary as in any other form of disease.

1908. The nature of the several remote causes indicates the manner in which the system is to be relieved from their operation. Early rest, moderate exercise, plain nourishing food, temperance in eating and drinking, &c.; in short, a life the reverse of that indicated by the nature of the remote causes (1894), is necessary to the recovery of health; and the efficacy of such a change of habits is evinced in many cases stated by authors.

1909. Cullen says, "I must add here, that even when the disposition has discovered itself by several paroxysms of inflammatory gout, I am persuaded that labour and abstinence will absolutely prevent any returns of it during the rest of life."<sup>1</sup>

"Van Swieten relates the case of a priest who enjoyed a rich living, and had long been an old and constant sufferer in the gout; but happening at last to be taken by the pirates of Barbary, was detained there in a state of slavery for the space of two years, and kept constantly at work in the galleys with only a very spare diet. The regimen he there underwent had this good effect, that after he was ransomed from his captivity, having lost his troublesome and monstrous fatness, he never once had a fit of the gout, though he lived several years after the event happened."<sup>2</sup>

Rush tells us, "A gentleman from one of the West India islands, who had been for many years afflicted with the gout, was perfectly cured of it by living a year or two upon the temperate diet of the jail in this city,

<sup>1</sup> Cullen's First Lines, &c. DXLIII.

<sup>2</sup> Ibid. note.

into which he was thrown for debt by one of his creditors.”<sup>1</sup>

1910. What has been said respecting the removal of the remote causes (1908. 1909), is applicable to all the forms of gout.

1911. The second object to be kept in view, is to excite and support the action of the heart, if increased action, or a regular paroxysm have not yet come on; or in the intervals, if it have; or if it have finally sunk into weakened action, or atonic gout.

1912. Vomits are very effectual means of accomplishing this object, and have frequently been found serviceable in gout. I have never however used them. Rush mentions the case of Mr. Small, who, in an excellent paper on the gout containing the history of his own case, tells us that he always took a vomit *on the first attack of gout*, and that it never failed of relieving all its symptoms. The matter discharged was always a *dark greenish bile*.

He also states that a British lieutenant “informed the late Dr. Steuben that he had once been much afflicted with the gout, and that he had on many occasions strangled a fit of it by *the early use* of an emetic. Dr. Pye adds his testimony to those which have been given in favour of vomits, and says further, that they do most service when they discharge an acid humour from the stomach.”<sup>2</sup>

1913. The effect of vomiting is apparent. The strong compression of all the viscera, particularly the abdominal, forces on to the heart a great quantity of blood; which being the natural stimulus of that organ,

<sup>1</sup> Rush's Works, Vol. 2, p. 178.      <sup>2</sup> Ibid. p. 167.



it is excited to increased action, whereby every artery is filled, and the blood is thrown strongly to the external surface. By this means the accumulation of blood in the venous cavity, evinced by the presence of the dark green bile, and the acid in the stomach, as well as by other marks observed in the beginning of the disease (1879), is dispersed, and its effects cease. An emetic in like manner is serviceable, indeed often performs a cure, in the *forming state* of a fever, and in the very same way. The patient has pains in several parts of the head and trunk, with shivering, &c. marks of fulness of the venous cavity. An emetic throws the blood to the surface, raising the pulse, and increasing the colour and temperature; thereby relieving the interior, and preventing the effects about to flow from the accumulation of the blood within.

1914. Vomits are particularly adapted to the forming stage of a paroxysm of gout. The principal dependance however for attaining the end in view (1911), is on the medicines best adapted to accomplish the third object (1907).

1915. The third object, lessening the accumulation of blood in the venous cavity, is to be effected by those medicines which produce discharges from the liver. How this is to be done has been already fully stated (1565). These remedies are the principal dependance in atonic gout. The cases which I have had an opportunity of treating are not numerous, in consequence of the idea above alluded to, that the gout is a peculiar disease, not to be meddled with, and to be counteracted, for the most part, only when it attacks the stomach, &c. I have however, in those cases in

which I have been enabled to follow the plan proposed, seen the most marked benefit from the pills of jalap, aloes, and calomel, or of rhubarb, aloes, and calomel. The discharges are in these cases generally very dark, or black, or green, and when free afford very rapid and great relief from the affections of the stomach, &c.

1916. Medical writers have mentioned a number of remedies which have not only removed the symptoms of atonic gout, and of those appearing in the intervals of regular gout, but have prevented the paroxysm. These however, as far as my information extends, have operated on the bowels in the manner here proposed.

1917. Costiveness, says Rush, should be prevented by all who wish to escape the return of violent fits of the gout. Sulphur is an excellent remedy for this purpose. He knew two persons who had been accustomed to have two fits a year, and who had by it been preserved from them for several years. Rhubarb may be taken "to obviate costiveness, by persons who object to the habitual use of sulphur." Dr. Cheyne also recommends sulphur and rhubarb, and says he knew a person who took from a quack sixty grains of rhubarb, disguised with cochineal, every morning for six weeks, and had no symptom of the gout for four years afterwards.<sup>1</sup>

1918. It is plain that merely obviating costiveness is not all that is done in these cases. Rhubarb we have seen is well adapted to produce evacuations from the liver. In the case abovementioned, in which it was so beneficial, the dose was a large one.

Sulphur also is well adapted to effect the same pur-

<sup>1</sup> Rush's Works, Vol. 2, p. 183.

pose : but in consequence of the objection to the smell, and of some prejudices against its effects on the system, I have not very commonly used it. It may however be observed, that it has in a remarkable degree the effect of sustaining the action of the heart, and on that account, and its moderate and easy operation, might often be used advantageously in cases in which the patient is very low and weak.

1919. Dr. Clerk states that a patient of his, "a tall, stout, full man, of a sanguineous temperament, and aged forty-eight," was cured by drinking lime water. "He was first seized with the gout about twelve years ago, which returned on him once in two years. After four or five years, he came to have a fit of it once every year, and it lasted longer, confining him commonly six weeks, or two months at a time. The last fit he had was in the autumn of 1761. In January 1762, I advised him to try lime-water, with a view to lessen or remove his gout. He accordingly began to use it at that time, and ever since he has not had the smallest return of the gout. His method of taking it is singular ; for, about an hour after his breakfast, (which is always of bread and milk,) he drinks off an English quart of lime-water in the space of a minute, or even less. It never made him sick, or disagreed with his stomach ; but *it always purges him two or three times* before or after dinner. Lately, when it was like to lose its laxative quality, I ordered him to drink four ounces of it more than his usual quart ; since which it purges him as well as formerly. Ever since he began to use the lime-water, he has not only had no fit of the gout, but has likewise kept *free of every other ail-*

ment.”<sup>1</sup> This was printed in 1771, ten years from the commencement of the time of his having *two or three evacuations from his bowels daily*.

1920. The same author also mentions a case in which tansy was very serviceable. A gentleman after having had the gout for several years very severely, having been confined for two or three months every winter, and sometimes a month in summer, began seven years before the time of writing (1771,) to take an infusion of tansy. He filled a pint teapot full of leaves, flowers, and small stalks of this herb, and poured in as much boiling water as the pot would contain. This was done in the morning, and he drank the cold infusion on going to bed. He had no return of the gout in the seven years but once slightly when he strained his ankle. *He had two easy stools every day.*

1921. He mentions another case of the good effect of tansy; but states that the patient never observed any *remarkable* evacuation from the tansy. This was also the case with the first (1920). He told Dr. Clerk “that the tansy never operated upon him by occasioning any sensible evacuation, either by sweat, stool, or urine;” but he yet said he had two easy stools every day; he could not recollect the state of his bowels before he began to use the medicine. The same thing I have often observed; patients have mentioned their being cured by bark, &c. &c. and have not mentioned the action on the bowels till their attention was turned to it, when they recollected that their bowels were very open (1844. 1845).

1922. Dr. Clerk mentions also the case of a gentle-

<sup>1</sup> Edinburgh Physical and Literary Essays, Vol. 3, p. 459.



man about thirty, several of whose nearest relations were gouty, and who had had slight touches of the gout in the feet. He complained of "disorders and pains of his stomach, especially in spring and autumn," and had tried a variety of medicines without relief. He was advised to take half an ounce of the elixir sacrum every second night. This had so good an effect that it not only cured him at the time, but enabled him to use much more freedom in eating and drinking than he ever could before. Half an ounce of this tincture contains the substance of seven and a half grains of rhubarb, and four and a half of aloes. The pills of rhubarb and aloes I have recommended, contain two grains of each; two pills, and sometimes one, act two or three times on the bowels.

Here also the disease was carried off by the same evacuation.

1923. The same author, speaking of cicuta, says it sometimes succeeds "in bringing the gout down into the extremities." In one case however, "the cicuta performed a cure by removing the symptoms without producing a regular gout."<sup>1</sup> She took however, with the cicuta, a laxative of aloes and some other ingredients, every second night.<sup>2</sup> It is evident from the statements made (1917. 1919. 1920. 1922) that the laxative performed the cure in this case also.

1924. We have therefore every reason to believe that the use of such cathartics as operate on the bowels in such a manner as to produce two or three loose passages every day, will effectually cure the gout. This is true, not only with regard to preventing the

<sup>1</sup> Edinburgh Physical and Lit. Essays, p. 451.

<sup>2</sup> Ibid. 452.



recurrence of the paroxysms of regular gout, as in the cases 1917, 1919, and 1920, but with regard to the removal of those internal affections called atonic gout, as in the case 1922.

1925. The fourth object is to reduce the action of the heart when it is too high, which occurs not only in paroxysms of regular gout, but sometimes when internal parts, the stomach and others, are affected.

1926. The subjects of regular gout are generally in a highly inflammatory state. Injuries done to an external part are followed by inflammation much more considerable in them, than that which occurs in people of more temperate habits. Regular gout is itself an highly inflammatory fever, with local inflammation in some of the joints. It would seem, this being the case, that there should be no doubt respecting the proper mode of treatment. It has however generally been deemed unsafe to treat this disease as other inflammatory diseases are treated.

The most effectual means of reducing inflammatory action, bleeding, has been employed very timidly. Cullen says that in first paroxysms, and in the young and vigorous, blood-letting at the arm may be practised with advantage; but he is persuaded that this practice cannot be repeated often with safety.<sup>1</sup>

1927. In consequence of the general belief that the regular gout is salutary, it is a rare thing to have the treatment of a paroxysm; and therefore my experience is very limited on this point. But from the success attending the active treatment of gout in which some internal part is attacked, precisely in the same

<sup>1</sup> Cullen's First Lines, &c. DLXII.

way that any other inflammatory disease is treated, together with the good result of the same treatment in cases of a mixed character, I am persuaded that all cases of gout in which there is inflammatory action, ought to be treated in the same way.

1928. One of the first cases of gout in my practice, occurred in one of a set of men who lived very high and drank freely, at times extravagantly. He was attacked after dinner with a severe pain in the side, which became more severe on drawing a long breath. The patient had dined at a tavern where the table was covered with many rich dishes, and had drank a great deal. His pulse was high and strong. He was bled largely ; and immediately afterwards took active mercurial cathartics, which operated very well that night, and all the next forenoon. In the afternoon on visiting him I found him free from pain, and sitting up and conversing.

1929. Another case occurred a year or two afterwards. The patient was advanced in life, and an old subject of the gout. He had violent pain in the side near the edge of the ribs, with strong pulse. He was bled two or three times, blistered, and freely purged ; and in three or four days was able to ride home, a considerable distance, in his carriage.

1930. An old gentleman who had had the gout for forty years, and who had been suffering severely in his feet and hands for many weeks, had a severe attack of gout in the side. The pain was near the edge of the ribs, and was increased by a long inspiration. I visited him in company with a gentleman practising in this neighbourhood. Though he was very feeble, the

pain was so severe, and the pulse so strong, that we believed that it was necessary to moderate it speedily. He was accordingly bled twice; he was purged every day for many days; he was blistered on the side twice, and recovered a more perfect state of health than he had enjoyed for some years.

1931. There are many facts mentioned by medical authors, which show the propriety of bleeding in gout. Dr. Rush used to mention the case of a gentleman who let fall a penknife which stuck in his foot and let out a large quantity of blood, with extraordinary relief from an attack of gout under which he was then suffering. He mentions many other instances of the good effects of bleeding in gout in his observations on that disease.<sup>1</sup>

1932. Parr, I think, relates that he knew a judicious practitioner subject to gout, who at its first appearance takes a large quantity of blood from the arm; or, if he can, from a vein nearer the affected part. He was strong and robust, and had followed the practice many years.

1933. Some instances of the good effects of the practice are stated by the translator of Boerhaave's aphorisms. He had attended a lady sixty years of age in several long fits: in one of them he persuaded her to be bled, when the fit went off in one day. The gout returned several times, and she was bled five times in ten months with like success.<sup>2</sup>

1934. The inflammation may also be safely reduced by cold applications. Of this I am persuaded, although I have not used them. The gentleman whose case is

<sup>1</sup> Rush's Works, Vol. 2, p. 165. 184. <sup>2</sup> Boerhaave's Aph. 1270.

mentioned in 1930, informed me that he had some years ago been advised by a friend whom he met with in Washington, to dip his feet in cold water every day. He was however too fearful of ill consequences to make the attempt; but some time after meeting with a recommendation of the same practice in some paper or book, he tried it. He put his feet in a bucket of water, and poured the water with his hands over his knees for twelve or fifteen minutes. This was done every day. The consequence was, that the fit of the gout, instead of continuing the usual time, of weeks, and even months, went off in about a week; and he continued the practice up till the latter part of the last year. His situation at that time was such that it was not convenient to follow the practice, and he too easily gave it up; when he had the long continued fit of the gout abovementioned.

Rush also mentions a number of instances in which benefit has been derived from the practice of applying cold water and cold air to inflamed parts in the gout.<sup>1</sup>

Dr. Clerk mentions the case of a lady who had slight touches of the gout for four or five years, but had always put it away by setting her feet when pained in cold water.<sup>2</sup>

On the contrary, warm or hot applications are injurious. The old gentleman abovementioned applied warm water and steam to his feet on several occasions, by advice, and always with an increase of the pain.

<sup>1</sup> Rush's Works, Vol. 2, p. 168.

<sup>2</sup> Edinburgh Physical and Literary Essays, Vol. 3, p. 433.

1935. Cathartics are also highly proper in a paroxysm of gout. The most successful empiric medicine known, the *cava medicinale*, is a most violent cathartic. The substitute for this medicine by an English practitioner, the *vinum colchici*, has the same effect, and is likewise of great service in gout. In the cases mentioned (1928 to 1930), free purging was employed with manifest advantage. In other cases I have rested the treatment on cathartics alone.

A friend of mine, Dr. Withers of Warrenton, had a patient of full habit, who lived very freely, and was subject to gout, in whom an attack was brought on by a blow on the elbow. He was cured by active cathartics.

The cathartic employed in my practice, is the pill already described at large (1579, &c.). Nothing need be added here respecting its administration.

1936. Blistering I have used to the side with marked benefit, but never employed it to the feet. Rush, however, states that Dr. Chalmers of South-Carolina used to apply a blistering plaster as soon as the gout fixed on any of his limbs, and generally removed it by that means in two or three days. He says he has imitated the practice, and always with success; and never knew any internal part to be affected in consequence.<sup>1</sup>

<sup>1</sup> Rush's Works, Vol. 2, p. 170.



## CHAPTER XXVII.

### OF HYPOCHONDRIA, MELANCHOLY, AND MANIA.

1937. The symptoms of hypochondria are diminished appetite,<sup>1</sup> flatulence and eructations,<sup>2</sup> sometimes an excessive acidity,<sup>3</sup> costiveness,<sup>4</sup> sallow or yellow, or even livid complexion, slow pulse, coldness of the surface, breathing slow and impeded,<sup>1</sup> fulness of the abdomen,<sup>5</sup> and a copious discharge of urine.<sup>6</sup>

The spirits are also low ; the patient pays great attention to his feelings, and to appearances on the surface of his body, whereby things perfectly natural and common, but not observed in a better state of mind, are considered as morbid symptoms, and slight morbid affections are magnified ; he entertains gloomy apprehensions of evil from these feelings and affections ; and sometimes experiences an aberration or derangement of intellect, evidenced by belief in the reality of things which do not exist ; or of changes of his form, &c. which have not occurred.<sup>7</sup>

1938. The remote causes of this disease Cullen does not mention. Boerhaave states the following among

<sup>1</sup> Boerhaave's Aphorisms, 1094.

<sup>2</sup> Ibid. 1099. Sydenham's Works, p. 414.

<sup>3</sup> Cullen's First Lines, &c. MCCXXXVI. Boerhaave's Aph. 1099.

<sup>4</sup> Cullen's First Lines, &c. MCCXXXVII. Boerhaave's Aph. 1099.

<sup>5</sup> Boerhaave's Aphorisms, 1099. Sydenham's Works, p. 408, note.

<sup>6</sup> Sydenham's Works, p. 421.

<sup>7</sup> Cullen's First Lines, &c. MCCXXVII.

other remote causes; violent exercise of the mind, dwelling night and day mostly upon one object, constant wakefulness, great emotions of the mind, immoderate venery, certain medicines and slow poisons, great and laborious motions of the body often repeated, chiefly in a very hot and dry air, and hot fevers hanging about long, and returning often without a good crisis, or use of proper means to cure them.<sup>1</sup>

1939. These produce weakened action of the heart (chap. ii. iii.), and consequently accumulation of blood in the venous cavity (1218). It may be observed, that the words *chiefly in a very hot and dry air* (1938), manifestly point to miasmata as a remote cause; inasmuch as in such a country as Holland, literally a drained marsh, abounding with low wet places and water-courses, natural and artificial, such a state of the atmosphere cannot exist without producing an abundance of miasmata; which has been shown to be a cause of weakened action of the heart, and consequently of accumulation of blood in the venous cavity.

1940. The symptoms observed in this disease (1937), have been shown to be effects of the same accumulation (chap. xix).

1941. Boerhaave mentions the same agents as remote causes of hypochondria and melancholy;<sup>1</sup> and considers them as different degrees of the same disease.

1942. In aphorism 1093 he mentions the remote causes of melancholy; and in aphorism 1098, refers to them as the remote causes of hypochondria also.

1943. In aphorism 1092 he mentions the proximate

<sup>1</sup> Boerhaave's Aphorisms, 1093, &c.

cause of melancholy ; in aphorism 1098 he refers to the same agent, "that very matter 1092," as the proximate cause of hypochondria ; in aphorism 1102 he refers to "that very matter of 1098," viz. the cause of hypochondria, as the cause of melancholy ; and in aphorism 1104, mentions "that evil of 1102" advanced to great acrimony, as the cause of the symptoms of an aggravated melancholy.

1944. In aphorism 1094 he mentions the first degree of the symptoms, or the effects of the proximate cause of melancholy : in aphorism 1099 he mentions the symptoms of hypochondria, and, after stating a number of these, refers to "all the bad symptoms of 1094, now grown much worse," as occurring in hypochondria ; and in aphorisms 1102, 1103, and 1104, he refers to the first grade of symptoms, or effects of the proximate cause (aphorism 1094), and to those constituting hypochondria (aphorism 1099), in an aggravated degree arising from the increase of the power of the proximate cause, as constituting confirmed melancholy.

1945. Cullen acknowledges himself "at a loss to determine in all cases how hypochondriasis and melancholia may be distinguished from one another ;"<sup>1</sup> but nevertheless makes the attempt.

1946. Speaking of melancholy he says, "The hypochondriasis I would consider being always attended with dyspeptic symptoms ; and though there may be, at the same time, an anxious melancholic fear arising from the feeling of these symptoms, yet, while this fear is only a mistaken judgment with respect to

<sup>1</sup> Cullen's First Lines, &c. MDLXXXVI.

the state of the person's own health, and to the danger to be from thence apprehended, I would still consider the disease as hypochondriasis, and as distinct from the proper melancholia. But when an anxious fear and despondency arises from mistaken judgment with respect to other circumstances than those of health, and more especially when the person is at the same time without any dyspeptic symptoms, every one will readily allow this to be a disease widely different from both dyspepsia and hypochondriasis; and it is what I would strictly name melancholia."<sup>1</sup>

1947. In this passage he represents hypochondria as always attended by dyspeptic symptoms; but in the chapter of hypochondria he says, that in this disease "the symptoms of dyspepsia, or the affections of the stomach, are often absent."<sup>2</sup>

In this passage (1946) he also states, that "what he would strictly name melancholia," is without any dyspeptic symptoms, and in the very next paragraph he admits there are *generally* some dyspeptic symptoms in melancholy.<sup>3</sup>

1948. There is equal inconsistency in his nosology. He defines melancholia thus, "*Insania partialis sine dyspepsia.*"<sup>4</sup> In a note to this definition he says, "*Hypochondriasis et melancholia non semper distinguui possunt. Si quando autem possint, nullo alio signo quam per dyspepsiam in hypochondriasi semper præsentem, in melancholia sæpe absentem rite, quantum video, distinguendi sunt.*"<sup>5</sup>

<sup>1</sup> Cullen's First Lines, &c. MDLXXXVII.

<sup>2</sup> Ibid. MCCXXXI.

<sup>3</sup> Ibid. MDLXXXVIII.

<sup>4</sup> Cullen Synop. Nosol. Tom. ii. p. 257. Partial insanity *without dyspepsia*.

<sup>5</sup> Ibid. Hypochondria and melancholy *cannot always be distinguish-*

If dyspeptic symptoms are frequently absent in melancholy, they are generally present, as he admits in his *First Lines* (1947). If, therefore, hypochondria and melancholy are to be distinguished by no other symptom than one which is always present in one, and generally in the other, they cannot be distinguished at all : for, if those cases of melancholy which have no dyspeptic symptoms are the same with those that have, and the latter are not to be distinguished from hypochondria, the former likewise are the same with hypochondria.

1949. These inconsistencies show clearly the impossibility of indicating any other difference between hypochondria and melancholy than that which Boerhaave has stated ; viz. that of grade.

1950. The remote causes of mania, Boerhaave says, are the same with those of hypochondria and melancholy<sup>1</sup> (1938). Cullen says almost nothing of the remote causes.

1951. The remote causes mentioned by Boerhaave all produce, as we have seen (1939), weakened action of the heart, and consequently accumulation of blood in the venous cavity.

1952. This accumulation is evinced by the symptoms, which are its effects ; viz. besides the affection of the mind, costiveness, want of appetite, or voracious appetite (1839), and all the symptoms of melancholy (1937), which, according to Boerhaave, in an aggravated degree constitute mania.<sup>2</sup>

*ed.* But if at any time they can be, they are to be distinguished by no other mark, as far as I can see, than by the *constant presence* of dyspepsia in hypochondria, and its *frequent absence* in melancholy.

<sup>1</sup> Boerhaave's Aphorisms, 1119.      <sup>2</sup> Ibid. 1118. 1119.



Sydenham says madness sometimes follows inveterate intermittents, particularly quartans.<sup>1</sup>

Boerhaave says it "is occasioned sometimes after the body has been exhausted by an autumnal, strong, obstinate intermitting fever,"<sup>2</sup> &c. In this state of exhaustion there is always an accumulation of blood in the venous cavity (1528).

1953. The same accumulation is also shown by the dissection of the dead bodies of maniacs. Boerhaave says in this disease the vessels of the brain are turgid, varicose, and distended with black blood.<sup>3</sup>

1954. Abundance of evidence of this state of the vessels of the brain is found in Morgagni's work of the seats and causes of diseases.

1955. A young woman of twenty being denied the liberty of going into a nunnery, which she very much desired, became melancholy, and finally mad, and died. In the cranium a small quantity of serum was found extravasated.<sup>4</sup>

1956. A butcher disordered in his senses fourteen months, at length died. Water was found extravasated under the pia mater.<sup>5</sup>

1957. A woman of forty, who was disordered in her senses, died of an angina. The body was examined in a hurry, and the only mention made of the brain is that it was very hard. The case is mentioned with others to show that the brain is always hard in maniacs.

1958. Another woman had been insane nine years.

<sup>1</sup> Sydenham's Works, sec. 1, chap. 5, art. 53.

<sup>2</sup> Boerhaave's Aphorisms, 1125. <sup>3</sup> Ibid. 1121.

<sup>4</sup> Morgagni on the Seats and Causes of Diseases, Let. 8, art. 2.

<sup>5</sup> Ibid. art. 6.

There was water under the pia mater, but none in the lateral ventricles. The medulla was brownish, which Morgagni attributed to the sanguiferous vessels being fuller than usual, because the deeper he "went from the cortical substance, the less brown did the medulla seem to be."<sup>1</sup>

1959. A man who had been long disordered in his senses, died of a slow fever. The carotid arteries, and the internal jugular veins were larger than usual. There was water under the dura and pia mater, but none in the ventricles.<sup>2</sup>

1960. Another maniac dying, of what disease Morgagni could not ascertain, the vessels of the brain were found to be distended, "which (he observes,) might also be owing to the last disease."<sup>3</sup>

1961. A maniac leaped out of bed in the night and struck his head against the floor or wall, and died immediately. "The skull and cerebrum showed no particular marks which were the effects of the blow. There was a little water betwixt the meninges: in the right and the left ventricles, there was so far from being a little, that they were half full; and the water which was contained in them had a mixture of red and yellow. The plexus choroides were red; the remaining vessels also were fuller than usual with blood."<sup>4</sup>

1962. In these cases, all mentioned by Morgagni, there was actual fulness of the vessels, or extravasation of water in the cranium, which is the effect of fulness. There is only one case in which neither is mentioned, but Morgagni mentions that he was strait-

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. viii, art. 9.

<sup>2</sup> Ibid. art. 11.

<sup>3</sup> Ibid. art. 12.

<sup>4</sup> Ibid. art. 15.

ened for time, and makes a single observation only, of a line, respecting the hardness of the brain which he was endeavouring to show always occurred in maniacs. The other cavities of the body were not examined.

1963. Similar appearances have been discovered in the bodies of melancholic persons. "Van Swieten saw the vessels of the brain 'distended with a very black and pitch-like blood' in a melancholic woman;" and Wepfer saw a quantity of extravasated water in another.<sup>1</sup>

1964. A man of forty, from the time of his becoming a rower in the galleys, became hypochondriac, and was at length affected with madness of a joyful kind. He continued in this state ten years, when being somewhat swelled in his whole body, and having a difficulty of breathing, he died.

When his head was cut off a very small quantity of water flowed out of the cranium; and likewise when they cut into it, and when they took out the brain. The thorax contained a great quantity of water: the abdomen was not examined.<sup>2</sup>

1965. Parr says that Lientaud found the vena portæ of persons who had been hypochondriac greatly dilated; and says the other abdominal veins are often in the same state.

1966. Hypochondria, melancholy and mania, proceeding from the same causes, and having the same symptoms, are the same disease differing only in degree.

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. viii. art. 14.

<sup>2</sup> Ibid. Let. lxi. art. 5.

1967. This doctrine has long been entertained by physicians.

"Alexander Trallian says that madness is nothing but melancholy arrived to a high degree, and that the connexion between these two disorders is so great that a transition from one to the other easily happens (see 647). Aretæus also says that melancholy is the beginning and origin of madness, which is brought on by the increase of melancholy, rather than by any other cause."<sup>1</sup>

1968. Boerhaave says if melancholy increase so far that the patient is thrown into a wild fury, it is called madness; which differs only in degree from the sorrowful kind of melancholy, is its offspring, produced from the same causes, and cured almost by the same remedies.<sup>2</sup>

1969. Cullen in his Nosology classes melancholy and mania under the same order, and defines melancholy, "*Insania partialis sine dyspepsia*;"<sup>3</sup> and mania, "*Insania universalis*."<sup>4</sup>

1970. In his First Lines he doubts the propriety of this in all cases. He thinks that when insanity occurs in persons of a sanguine temperament, and is attended with agreeable rather than with angry or gloomy emotions, it should be considered different from that occurring in melancholy persons. It is evident however, that this difference is not an essential one; as in a case mentioned above (1964), a joyful mania occurred in a person who was in the commencement melancholy.

<sup>1</sup> Motherby's Medical Dict. art. Mania.

<sup>2</sup> Boerhaave's Aphorisms, 1118. 1119.

<sup>3</sup> *Partial* insanity without dyspepsia. <sup>4</sup> *Universal* insanity.

1971. Notwithstanding this doubt, he repeatedly speaks of melancholy and mania as different states<sup>1</sup> and degrees<sup>2</sup> of insanity; of "cases of melancholy approaching to a state of mania;"<sup>3</sup> of mania arising in consequence of melancholy,<sup>4</sup> in other words, of melancholy increasing, as Boerhaave says, till the patient is thrown into a fury; of the same state of the brain in a moderate degree producing melancholy, "and in a higher that mania which melancholy so often passes into."<sup>2</sup>

1972. Morgagni uses similar language. He speaks of a virgin whose delirium had degenerated from melancholy into madness.<sup>5</sup> He says, "Madness, to use the words of Willis, which are produced in the same volume, 'is so far a-kin to melancholy, that these disorders often mutually interchange their appearances, and go over one into the other.' And you often see physicians doubting, on the one hand from taciturnity and fear, and on the other loquacity and boldness, every now and then alternately appearing in the same patient, whether they should pronounce him to be afflicted with madness or with melancholy"<sup>6</sup> (646. 647).

1973. The effect of spontaneous or artificial evacuations from the venous cavity, in relieving or curing these diseases, shows their common origin and their identity.

1974. Boerhaave, speaking of hypochondria and melancholy, says, that "a cure has often been unexpectedly obtained at the appearance and breaking out

<sup>1</sup> Cullen's First Lines, &c. MDLVII.      <sup>2</sup> Ibid. MDXC.

<sup>3</sup> Ibid. MDXCVII.      <sup>4</sup> Ibid. MDLX.

<sup>5</sup> Morgagni of the Seats and Causes of Diseases, Let. viii, art. 3.

<sup>6</sup> Ibid. Let. viii, art. 1.



of a nasty itch," sometimes resembling a leprosy; or of numerous very large varices; or of flowing of the much swelled piles; or at the discharging of black bile upwards and downwards.<sup>1</sup>

1975. The appearance of such an eruption on the skin (1974), shows a tendency of the fluids to the external surface, which must have the effect of relieving the interior veins of a part of the load under which they had been suffering. It is the exact counterpart of the appearance of these symptoms on the disappearance, called the repulsion, of such eruptions.

1976. These effects have been attributed to an acrid matter repelled, and the relief to the same translated to the skin again. But the same symptoms appear on the disappearance of the menstrual and the hemorrhoidal discharges, upon the failure in the returns of a habitual bleeding at the nose. In these there is no acrid matter, and therefore it is not the acrid matter in those, if there be any, which produces the effects. It is the increase of fulness of the vessels, an effect common to the disappearance of all these, that produces the symptoms.

1977. Numerous very large varices suddenly appearing on the surface of the body (1974) likewise indicate a tendency to the external parts, and the transfer of a considerable portion of blood from the interior; and should therefore be followed by relief of the symptoms dependant on fulness of the interior.

1978. A discharge of blood from the hemorrhoidal veins (1974), in the most direct manner lessens the fulness of the venous cavity, and therefore may well

<sup>1</sup> Boerhaave's Aphorisms, 1110.

remove symptoms dependant on that fulness for existence.

1979. A discharge of black bile upwards and downwards (1974), is another mode of evacuating directly from the venous cavity, and should therefore relieve or remove the symptoms in question. It is the very evacuation, arising without the interposition of art, on which reliance should be placed for removing the disease.

1980. Such evacuations produced by various means have been found effectual in relieving or curing every grade of this disease. Bleeding is necessary when the pulse is strong, blistering the head is often useful, and emetics have been strongly recommended, but those medicines which produce evacuations from the liver are indispensably necessary, and the main dependance in every case.

1981. Boerhaave, besides attention to regular sleep, gentle continued exercise, good air, mild and nutritive diet, and such as is calculated to prove laxative, (such as thoroughly ripe fruit, vegetables, soup with vegetables,<sup>1</sup>) recommends such medicines as put the peccant matter, the black bile, (aphorism 1092,) into motion, which is indicated by "an unequal and weak pulse, a nauseating, or continual pressing to go to stool, an anxiety, and a small fever," and then to "drive out the same immediately with a gentle opening purge, a glyster of the same kind, milk whey, mineral waters, and the like."<sup>2</sup> He also forbids such purges as "drive out the wholesome and moveable humours," but let "the tough and bad ones stay behind;"<sup>3</sup> "such as

<sup>1</sup> Boerhaave's Aphorisms, 1097.

<sup>2</sup> Ibid. 1101. 1103.

<sup>3</sup> Ibid. 1100.

weaken and evacuate roughly.”<sup>1</sup> This direction, although clothed in expressions arising out of his theory, evidently amounts to this; to purge with medicines which evacuate bilious matter, and to avoid such as evacuate an abundance of mild fluids, and leave the viscid bile behind. He recommends mineral waters made effectual by the addition of salts, and also loosening mercurials; and adds, “From which (aph. 1110 to 1117,) it appears that the cure of this disease is perfected in curing the black choler” (or bile).<sup>2</sup>

1982. A similar practice is recommended by subsequent writers. Some advise small doses of salts; as soluble tartar,<sup>3</sup> &c.: others aloetics; as Rufus’s pills, and *tinctura sacra*.<sup>4</sup>

1983. It is to be observed that small doses of the saline medicines, as recommended by Boerhaave and others, are much better adapted to produce bilious discharges than large doses. I have found, in experimenting on this subject, that ten grains of Epsom salts in a tumbler of water, frequently repeated, in the course of a day or two produce a discharge somewhat like that from small doses of rhubarb. It requires eight or ten tumblers a day until the operation commences; afterwards fewer answer the purpose.

1984. All that is necessary in these cases, besides bleeding when the pulse will admit of it, is to give such cathartics as will bring away black or green bile, day by day, until the discharges become natural. In some cases it is necessary to continue the discharges from the liver after they become natural (1622).

<sup>1</sup> Boerhaave’s Aphorisms, 1111.      <sup>2</sup> Ibid. 1117.

<sup>3</sup> Cullen’s First Lines, &c. MDLXVII.

<sup>4</sup> Motherby, article Hypochondria.

1985. Patients in such affections often bear very large and repeated bleeding with advantage. Sometimes, when they do not seem able to bear it at the commencement, the mercurial cathartics so excite the pulse that in a few days the loss of blood is indispensable. Bleeding sometimes produces a very great effect on the bowels. Being called to a patient in mania who had not had a passage for four or five days, I immediately took thirty ounces of blood from him. As soon as his arm was tied up after bleeding he had a passage, and two more in fifteen minutes, and fainted before he was done. He had not taken any medicine.

1986. In these affections very large and repeated doses of medicine are often necessary to move the bowels. The rule ought to be to persevere until the end is obtained; as the greatest folly that a physician can be guilty of, is to stand and look at the destruction of his patient, with the means of saving him in his hands unemployed.

1987. In the milder cases, such as are called hypochondria, the pills of jalap or rhubarb, aloes, and calomel, given so as to produce three or four bilious passages every day, produce a very good effect not only in removing the disorder of the stomach, bowels, &c. (1937), but the low spirits also. When a considerable amendment is thus produced, the patient will derive benefit from going to a watering place the water of which purges gently; particularly if he have so far recovered as to desire to go.

## CHAPTER XXVIII.

### OF HYSTERIA.

1988. Cullen in his *Nosology* thus defines hysteria: "*Ventris murmura; sensus globi in abdomine se volventis, ad ventriculum et fauces ascendentis, ibique strangulantis; sopor; convulsiones; urinæ limpidæ copia profusa; animus, nec sponte, varius et mutabilis.*"<sup>1</sup>

1989. In his *First Lines* he mentions the same symptoms more at large, as constituting a hysteric paroxysm or fit,<sup>2</sup> with some other symptoms which shall be noticed hereafter.

1990. The remote causes of hysteria are great commotion of the mind occasioned by some sudden fit of grief, anger, or terror; violent exercise, emptiness, long fasting, watching, all immoderate evacuations,<sup>3</sup> care, and hard study,<sup>4</sup> and severe emetics given to slender, weak women.<sup>5</sup> Whytt mentions also luxurious living and want of exercise, and long continued and repeated fevers.<sup>6</sup>

<sup>1</sup> Cullen *Synop. Nosol. Method.* Tom. II. p. 247. Murmuring noises in the belly; the sense of a ball rolling itself about in the abdomen, ascending to the stomach and fauces, and there producing a sense of suffocation; deep sleep; convulsions; a profuse abundance of limpid urine; the mind involuntarily fickle and changeable.

<sup>2</sup> Cullen's *First Lines*, &c. MDXV. MDXVI.

<sup>3</sup> Sydenham's *Works*, Letter to Dr. Cole, par. 78. 91. <sup>4</sup> *Ibid.* par. 76.

<sup>5</sup> *Ibid.* par. 91. <sup>6</sup> Whytt on the Nerves, p. 110. See also Sydenham's Letter to Dr. Cole, par. 89.



1991. All these have been shown to be causes of weakened action of the heart, and therefore of accumulation of blood in the venous cavity (1218); the known marks of which states of the system are present in the access of a paroxysm; viz. great coldness of the surface,<sup>1</sup> and weak pulse (1219).

1992. Whytt also mentions as causes of this disease, the retention of any accustomed evacuation, such as the menstrual or hemorrhoidal,<sup>2</sup> and the sudden ceasing of discharges from issues, setons, or old sores.<sup>3</sup> Cullen also mentions retention of the menses as a cause.<sup>4</sup> These evidently increase the fulness of the venous cavity (1250, &c.).

1993. The actual existence of accumulation of blood in the venous cavity at the time of these attacks, is shown by a number of circumstances.

1994. Hysteric fits especially occur at that time of life when women are subject to periodical accumulation of blood in the venous cavity, and most frequently at the time of the greatest fulness, viz. "the menstrual period."<sup>5</sup>

1995. They affect least those who are least exposed to periodical accumulation of blood in the venous cavity; viz. breeding less than barren women.<sup>5</sup>

1996. They affect breeding women most immediately after the stoppage of the menstrual discharge; that is, while the retained blood continues in the venous cavity in consequence of the fœtus being for some time too small to require it all.

<sup>1</sup> Sydenham's Letter to Dr. Cole, par. 72. 81.

<sup>2</sup> Whytt on the Nerves, p. 171. <sup>3</sup> Ibid. p. 177.

<sup>4</sup> Cullen Synop. Nosol. Tom. II. p. 249.

<sup>5</sup> Cullen's First Lines, &c. MDXVII.

1997. Cullen mentions some other states of the system as causes of hysteria, viz. excessive bloody or serous discharges from the vagina, obstructions of the viscera, disordered stomach. These are, however, effects of accumulation of blood in the venous cavity (1402. 1370. 1303. 1795, &c.) ; and the occurrence of these states at the same time with symptoms of hysteria, shows the presence of such accumulation, and tends to confirm the doctrine that hysteria is produced by the same cause.

1998. The symptoms of hysteria are such as accumulation of blood in the venous cavity is capable of producing.

1999. These (besides coldness of the surface, often death-like,<sup>1</sup> which is the effect of weakened action of the heart, 1210,) are a sudden and violent pain in the head with excessive vomiting,<sup>2</sup> palpitation,<sup>3</sup> dry cough,<sup>4</sup> pain in the pit of the stomach with vomiting of green bile, yellowness of the skin,<sup>5</sup> continued bilious vomiting and purging,<sup>6</sup> pain in the back,<sup>7</sup> fetid and acid eructations,<sup>8</sup> sleep disturbed by dreams,<sup>9</sup> nephritic, epileptic and apoplectic symptoms (1851. 1759, &c. 1681).<sup>10</sup> Cullen also mentions most of these symptoms.<sup>11</sup>

2000. These symptoms have been already shown to be effects of accumulation of blood in the venous cavity (chap. xix).

2001. One symptom deserves special notice because

<sup>1</sup> Sydenham's letter to Dr. Cole, par. 81.      <sup>2</sup> Ibid. par. 63.

<sup>3</sup> Ibid. par. 64.      <sup>4</sup> Ibid. par. 65.      <sup>5</sup> Ibid. par. 66.

<sup>6</sup> Ibid. par. 68.      <sup>7</sup> Ibid. par. 71.      <sup>8</sup> Ibid. par. 74.

<sup>9</sup> Ibid. par. 75.      <sup>10</sup> Ibid. par. 61. 62. 67.

<sup>11</sup> Cullen's First Lines, &c. MDXV. MDXVI. MDXVIII.

it has attracted particular attention at all times, the globus hystericus, or the feeling of suffocation. This Cullen has connected with the noise and motion in the bowels, also common in hysteria (1988). These are, however, very distinct affections. I have frequently witnessed each without the other; and have seen persons liable to the former attacked by it while asleep and awake greatly alarmed. If any one's experience should not have afforded him an opportunity of witnessing this, and a doubt should remain on his mind respecting the correctness of the observation; if he should still be disposed to attribute the sense of suffocation to something moving about in the bowels with a noise and rising to the throat, let it be considered that nothing can produce such noise and motion in the bowels but wind, and that wind rising to the top of the œsophagus must readily escape.

2002. The sense of suffocation is greatest when the pulse is weakest, and has been already shown to be an effect of great accumulation of blood in the cava, &c. (1296, &c).

2003. The flatulence producing noise and motion in the bowels is also an effect of the same (note to 1488).

2004. Low spirits, or sudden and great variation in the spirits are mentioned as symptoms of this disease. There is nothing surprising in this state of mind. Many of the symptoms, viz. pain in the head, or back, or stomach, palpitation, oppression of respiration, vertiginous affections, not being such as can be perceived by others, when persons continually harrassed by them frequently mention their feelings to their friends, they are considered as being low spirited; and when, by

agreeable and enlivening conversation, together with some refreshment, they are excited and acknowledge they feel better, the opinion is strengthened. Repeated occurrences of this kind produce a suspicion that the feelings complained of are imaginary; and this the more readily, because, while brooding over their miserable feelings which no one will listen to, and observing narrowly every change of state or of feeling, they take notice of many things which are natural and common but were not observed in a better state of mind, and consider them as morbid symptoms, and magnify the importance of slight morbid affections.

The relief experienced from the excitement produced by the presence of friends and by enlivening conversation, is perfectly consistent with the view given above of the nature of the disease. The countenance is visibly animated, the heightened complexion shows the increased vigour of the circulation; and the blood being drawn from the interior veins, the symptoms dependant upon its accumulation there disappear. As soon, however, as the patient is left alone, the excitement gradually subsides, the action of the heart sinks down to its ordinary state, or perhaps lower in consequence of the late excitement, and all the effects of that state return.

From the readiness with which the disease in its first stages is relieved by excitement produced by company and a cup of tea, it is too often considered as imaginary, and low spirits are thought to be all that ails the patient; and when in its progress the affection becomes so violent that its reality can no longer be questioned, it assumes a new name, and the patient is at

length said to die of apoplexy or epilepsy.<sup>1</sup> Hysteria is thus relieved from the reproach of killing any body, and progresses unsuspected at that period when a cure would not be difficult, until the constitution is broken down and the most that can be done is to keep down the disease by continued evacuations from the venous cavity.

2005. The dissections of Morgagni show the presence of the same cause, accumulation of blood in the venous cavity.

2006. He mentions the case of a woman of forty, at Venice. She was given to wine, of a fat habit of body, subject to fear even from a slight cause, from which she trembled and almost swooned away, vomited often, was frequently troubled with those motions and sensations in the bowels, which unquestionably are from wind, nothing else being capable of producing the noise heard in the bowels at these times, but which she with many others, learned and unlearned, attributed to the uterus moving "here and there, through her belly and sometimes ascending to her fauces, with a sense of suffocation." She at length died suddenly.

2007. The head, says Morgagni, "we had it not in our power to dissect." The pericardium contained a considerable quantity of water, of a brown colour, and inclining to be turbid. Both sides of the heart contained a black fluid blood; the left auricle was contracted, but the right was very turgid with this black blood, and the pulmonary artery contained a great quantity.

<sup>1</sup> Sydenham's letter to Dr. Cole, par. 61, 62.



These appearances indicated an immense quantity of black venous blood in the cava, and therefore in its branches.

2008. A woman of fifty-one years of age had had for five or six years large discharges of blood, of bloody serum, and of serous fluid from the uterus. When this was at any time suppressed she was very much distressed with pain in the hypogastrium, and other symptoms.

She sometimes had considerable difficulty in making water, which when discharged was accompanied by fetid blood.

She had on both sides a violent "ischadic pain," particularly bad in the night, so as to prevent sleep. "Then hysterical convulsions attacked her" with extreme violence. To these succeeded a tumour of the whole belly, with a very great dryness of the fauces, a frequent eructation of flatus, aversion to food, and swelling after eating. She at length died.

The whole belly was filled with serum. The substance of the kidneys was sound. The right contained very small calculi. The right ureter was dilated to the size of the little finger, and was full of urine.

The head and thorax are not mentioned.<sup>1</sup>

Here was proof of fulness of the venous cavity in the effusion into the cavity of the abdomen, and the appearance in the kidneys.

2009. A woman subject to hysterical disorders, who had a bad complexion, being already the mother of some children, was again pregnant, and had an apprehension that this pregnancy would prove fatal to her.

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xlvii. art. 8.

At the time of her labour she began to swell in her fingers and abdomen. Being very desirous of having a boy, and having made a wager on the subject, she nevertheless brought forth a girl. The sex of the child was cautiously concealed from her by the women; but being "imprudently revealed to her by her husband, she was seized with such an anxiety of mind that her pulse immediately sunk, and her body became cold."

It was then an hour after the child had been born; the placenta had not been removed. Neither pulse nor heat returning, she died in an hour and a half from the time they began to be deficient, "the flux of blood from the uterus, which you will be surprised at in this defect of pulse, continuing in its usual state till the very last extremity of life."

In the cavity of the abdominal pelvis bloody water was found effused. The vessels under the skin of the thighs near the pudendum were filled with blood.

"The heart was flaccid beyond description, and contained scarcely any blood in the auricles and the right ventricle, and in the left ventricle none at all." This extreme flaccidity could only have been produced by habitual fulness: the emptiness was the consequence of the hemorrhage.

The effusion in the abdomen also evinced fulness of the venous cavity.

The head was not opened.<sup>1</sup>

2010. Thus it appears that the remote causes of hysteria are such as produce accumulation of blood in the venous cavity (1990 to 1996); that marks of this

<sup>1</sup> Morgagni of the Seats and Causes of Disease, Let. xlvi. art. 44.

accumulation are present (1991); that the symptoms are such as it is capable of producing (1998, &c.); that dissections show the actual existence of extreme fulness of the venous cavity in hysteric persons (2005, &c.); and we shall now see that evacuations from that cavity are effectual in relieving or removing the symptoms.

### *Treatment of Hysteria.*

2011. This may be divided into that which is necessary in a fit, and that which is proper at other times.

2012. In a fit the extreme coldness, the feebleness of the pulse, the stupor, and the convulsions, produce excessive alarm in the friends of the patient, and, if any recollection remain, in the patient herself.

2013. The active stimuli ether, volatile alkali, laudanum, variously combined, are commonly administered: rubbing and slapping the hands are also considered important; but all these remedies, and every thing else I have ever tried, have no effect in comparison with an emetic. This shall be exemplified by a single case, which is all-sufficient to shew the effect which I have frequently observed.

2014. A lady, the mother of many children, of sedentary habits, slender form, and delicate in health for many years, was suddenly affected with extreme coldness of the hands, very feeble pulse, and such a sense of suffocation that she was fully persuaded she should immediately die. The whole family had gathered around her in great alarm: she was rubbed, slapped, drank hot water, had her feet and legs immersed in hot water, drank freely of hot toddy, and

at length drank some strong Jamaica rum undiluted, without perceiving the mistake, and, though totally unused to drink wine or spirit of any kind, without any effect on her pulse or on her senses. Her case seemed now to be extremely dangerous; and while reflecting for a moment on what further could be done to rouse the action of the heart, it suddenly occurred to my recollection that nothing is more effectual than an emetic. She took one immediately, and the relief was so instantaneous that I shall never forget the joy it occasioned to the surrounding friends. Some time after this she was attacked in the same way, but with much less violence. She sent for me, but being engaged I sent her an emetic, which gave immediate and perfect relief. She had but one more attack so violent as to induce her to take this remedy; this was about two years ago.

She took at once a table spoonful of antimonial wine in a draught of water, which vomited her almost immediately.

2015. At ordinary times, or in the intervals of the paroxysms, a laxative state of the bowels produced by the medicines repeatedly mentioned (1579, &c.), affords immediate relief, and kept up for a considerable time, is more or less effectual in restoring health, in proportion as the patient's constitution is less or more broken by the violence of the remote causes, and their continued operation.

2016. The following cases exemplify the truth of this.

A lady of dark complexion, upwards of thirty years of age, uncommonly sprightly in company, complain-

ed frequently of creeping sensations, of shivering occasionally, of cold hands and feet, pains in the head, side, breast, indifferent appetite, costive state of the bowels, &c., most of which symptoms disappeared when her complexion was heightened by conversation. She had often been rallied as being hysterical, and her case had been so considered by a physician who was consulted.

Being called to visit her, I gave her twelve grains of calomel, which produced several dark bilious passages. These were kept up by pills of scammony, aloes, rhubarb, and calomel (1589), for a week, at the rate of five or six passages a day. Her appetite by this time had improved, as well as her complexion and spirits; and she proposed going to a watering place the water of which had the effect of purging moderately. This was assented to, and after a few weeks she returned greatly improved in flesh, in high spirits, and with a better complexion than I had ever seen her have.

2017. A lady about fifty, whose menses had ceased about five years, had been in bad health about fifteen years. After a severe illness she was left with a pain in the left side, inward fevers, frequent headach; had a continual pain over her eyes, frequent inflammation of the throat, a quivering motion in her abdomen, a noise moving about in it; she said she felt "some big thing forcing its way up and choking her;" had a pain in the breast bone (under the sternum) at the same time; she frequently had a "gagging" (an ineffectual effort to vomit); belched a great quantity of wind; and had a dry cough. At times she had a large dis-



charge of pale urine, sometimes quarts, but in common it was high coloured and small in quantity. At the time she applied her constitution seemed to be completely broken up. She felt pains in every part of the body, accompanied by puffy swellings of the hands which often suddenly disappeared. She took the mercurial cathartic pills in the manner frequently described for about three months, and two or three emetics in the course of the time. During this time she discharged a great quantity of dark coloured and green matter. Her friends confidently declared she would die under such a course; attributing to the medicine, as soon as she began to take it, every bad symptom which had troubled her for years. She persisted, however, until *under the continued operation* she acquired a good complexion, a good appetite, relief from the pains, and all the symptoms of choking, &c. She has continued in good health to this time excepting a few relapses brought on by exposure to high degrees of the remote causes. On one occasion, during the distress and fatigue, night and day, of attending her family, every one of which was ill of an autumnal epidemic, she was attacked with excessively violent pain in the sternum, with almost an impossibility of drawing her breath; she was as pale as any dead body, and her pulse almost imperceptible. From these violent attacks she was speedily relieved by the same means; a few pills roused the pulse, and evacuated freely, and gave great relief; and a continuance of the same remedy so soon restored her to ordinary health, that she and her family felt little alarm at the most severe paroxysm.

Although her health is so far restored that she is cheerful and active, some of the symptoms are still sometimes felt in a slight degree. She sometimes has some pain in the sternum exactly in the depression between the breasts, some occasional difficulty of respiration, some cough, and pain near the insertion of the deltoid muscle of the left arm.

She can always keep down the symptoms with the pills of rhubarb, aloes, and calomel : if she takes them regularly for some time she has no pain whatever ; and continues well until she “ catches cold ;” when she is always immediately relieved by the same medicine.

2018. A woman, who had suffered abortion several times in succession immediately previous to her forty-first year, had leucorrhœa for many years afterwards, all which time her health was very bad. She was advised by a physician to live low : this she did to excess, and at the same time endured great and long continued fatigue daily, had very little sleep, and was frequently very much alarmed by her husband, who was a very bad man.

She was in consequence of these things weak, troubled with vertigo, with pain in her back, had no appetite, had soreness of the epigastrium on pressing it, was very costive, and had cramp in the feet.

The leucorrhœa was stopped by astringent injections by the same physician who gave the above advice. She very soon after became much worse. She felt cold in the right side and in the feet and legs, as if cold water was running down them.

Being particularly costive she took a cathartic which vomited her violently ; the cathartics were con-

tinued for a week. After this she felt very easy, and quite cheerful for four or five weeks.

At the commencement of my attendance she said she felt wind flying about her in different directions; and sometimes she is so possessed with the idea that some insect has got into her stocking, that she pulls it down to see. These creeping sensations are sometimes all over her.

She was purged from the third of February to the fifth of March. For the first eight days she took the mercurial cathartic pills; and her mouth becoming sore, she took as a substitute for the calomel, half a grain to a grain of nitrate of silver with the other cathartic ingredients. The latter compound is a very active cathartic. Her pulse rose very high after a short time; and on the 19th of February at night, being sent for on account of a creeping sensation in the neck which alarmed her very much, I bled her with considerable benefit: the blood was very black: she was bled four times afterwards.

After this course of purging she was, to use her own expression, a heap better; and continues so at this time, two or three years after the attendance ceased.

2019. A great variety of symptoms, perceptible and imperceptible to the bystanders, have been considered as nervous or hysterical. The following cases were successfully treated in the same way.

A young lady was violently affected with a continual and rapid nodding of her head. This had been treated as a nervous affection, and the physician had forbidden her ever to be bled. It always occasioned

great alarm, and on one occasion, many years ago, they sent some miles in the night to require my immediate attendance. The pulse being pretty good, bleeding was proposed, objected to on the ground above stated, insisted on as necessary, and performed freely and with marked benefit: an active mercurial cathartic was also given, and repeated for a few days. She was entirely relieved, and for years afterwards, during which I lived near her, I did not hear of any return of the disease; and have been informed by a cousin of hers, that she has not heard of her having had "a bad spell since."

2020. A young lady of slender form on the death of her father was violently convulsed. Her limbs were agitated in a very remarkable manner; her hands and feet were turned in every direction; her jaws were separated and closed alternately, involuntarily, and violently; her head was thrown forwards and backwards forcibly. Her pulse was weak; her feet cold.

She was relieved on one or two occasions with ether and laudanum, except the last mentioned affection of the head, which continued, and became permanent, night and day. It was less violent in the night, and was greatly increased by the least motion or agitation. She was entirely unable to walk, and kept her bed constantly; and had no appetite whatever. She continued in this situation two or three weeks without any effort to obtain relief, excepting by the use of anodynes once or twice as above stated, in the vain hope that the disease would at length subside.

Dr. Magill, of Winchester, whose patient she was, at length persuaded her to take a few pills of scam-

mony, rhubarb, and calomel, which operated indifferently. The same thing occurred on the second day : on the third he increased the dose, and the operation was very free ; the passages were of a dark brown colour, large, and consistent. The nausea was very great, and she being alarmed, the convulsive motion of the muscles of the neck was increased. The doctor then requested me to visit her. I found the surface quite cool, the pulse weak, the muscles on the fore part of the neck alternately contracting so as to become visibly larger, and relaxing immediately ; whereby her head was kept in continual motion forwards and backwards.

She was advised to continue the cathartic pills ; she did so, and on the second day after, viz. the fifth from the commencement of the cathartic pills, and the third from the time of their operating well, the convulsive motion had ceased.

After this the bowels were more easily moved than at first, her appetite rapidly returned, and she gained strength every day ; and has had no return of the convulsive motion except on one occasion for about half an hour, in consequence of being alarmed. She took nothing but cathartic medicines.

2021. An elderly man complained to me of a pain in the right side of his head, putting his hand over the parietal bone, of a sensation of coldness there and on other parts of the body, of strange feelings as of insects crawling on him, &c., and of such weakness that he could scarcely stand up or walk about : sometimes on a little exertion he felt so weak he was compelled to cease ; this feeling was relieved “by eating a mouthful.” His complexion was a deep sallow.



He took four of the pills of jalap, aloes, and calomel, every night for a week. They operated four or five times ; the discharges were first yellow, and then green. His colour was evidently improved, having become a clear red : the pain in the head was nearly gone, the appetite, which was indifferent, had become keen, and the feelings of cold, &c. were very much better. He lived at a considerable distance, and at the time of the report of the effect of the medicine, three weeks had elapsed since taking the last of the pills.

2022. A lady of slender form, and dark complexion, the mother of many children, had been troubled many years with the following and other symptoms ; viz. shortness of breath, but no wheezing ; she felt as if she had been running ; sometimes a choking in the throat, and a sensation of smothering ; she felt as if there was “ a core in her throat ;” she had a palpitation, with a pulsation in the abdomen, always most perceptible when the pulse was weakest ; coldness of the hands with irregular pulse, and sometimes a shivering ; these symptoms were accompanied by apprehension of death.

Sometimes these symptoms attacked her with such violence as to be cause of alarm to every one. An emetic, however, afforded effectual and immediate relief for the time (2014).

She sometimes had a chilly feeling in warm weather, and must have the doors and windows closed when it was disagreeable to others ; she frequently had a tremor of the whole body without any sense of cold ; this was sometimes very violent. After a hearty din-

ner these symptoms often disappeared, and she felt perfectly well; but she was often without appetite.

Sometimes she complained of violent headach, but not often. On first lying down in bed at night, she was frequently attacked by the sensation of smothering. Sometimes she was compelled to rise hastily; at others she could bear it; but on falling asleep was frequently roused up by the increase of the sensation so as to alarm her. In this way she sometimes spent an hour or two, excessively sleepy but unable to sleep.

2023. These symptoms were all most severe when the pulse was weakest and most irregular. When she complained much of any of them, it was considered certain that her pulse was weak or irregular, or both; and in no instance was the expectation of finding it so disappointed: moreover when the pulse was rendered weak upon one occasion by bleeding, the symptoms, sensation of smothering, &c., became so great as to induce her to believe she was dying.

2024. She was all her life very regular in the return of the menses; on one occasion, however, they did not appear until after an interval of two months and a half. Towards the latter part of this period she complained very much of the usual symptoms; and although the weather was very warm, in July and August, she slept under a blanket. In the middle of August she had a very abundant flow of the menses which continued eight days (a week is not unusual with her); and before it ceased she had a fine colour, her pulse had become regular and full, her appetite keen, and there was a visible improvement of health in every respect.

2025. These symptoms (2022) had progressed without much effort to relieve them, in consequence of the utter aversion of the patient to take medicine, until she was at length reduced to such a state that her death was not at all improbable, and she considered it as certainly approaching. She had lately been violently attacked with strange sensations and inability to stand; so that on an evening visit she was compelled to retire and lie down; and, on attempting to go home after a short time, she found herself unable to proceed, and I was compelled to sit down on the steps of a house and lay her across my knees; on a second attempt to proceed she again failed, and I was under the necessity of carrying her in my arms a considerable distance. After this she was for a long time afraid to venture into the street.

2026. Finding no persuasion could induce her to take medicine, one day when she was insisting on it that she could not live long, I assented to it, declaring that if she would persist in not making any effort to obtain relief, it could not be otherwise; but, that I was persuaded that if she would take the medicine advised, the pills of rhubarb, aloes, and calomel, that she would soon be restored to health.

2027. She could not agree to do this, but determined to take calcined magnesia, which in her case produced nearly the kind of passages I wished her to have. She continued for some time to take it very regularly, and with marked benefit in relieving her of the most of the symptoms; but she at length complained of weakness in the knees. This effect had been predicted; she was reminded of it, and urged to try the pills;

and so sensible was she of the benefit derived from the purging even with the magnesia, that she assented, though it was a severe trial, she being more averse to taking medicine than any one I ever met with.

2028. She at length commenced taking pills of rhubarb, &c. : they produced two or three consistent passages every day, of a dark colour, and were continued without perhaps one day's intermission, until she became strong, fleshy, and in better health in every respect than she had enjoyed for many years. When she commenced, she walked very slowly, with the appearance of infirmity, though but thirty-three years of age, and upon any exertion, as on ascending a flight of steps or rising ground, her respiration was hurried, she had a violent palpitation, and could scarcely proceed. After taking the pills a month or more, she walked from one side of the town to the other in a quick and lively manner, and ascended a hill without difficulty or stopping a moment. She continued to take them for several months (1612).

2029. She has since that time been exposed to the operation of some of the most powerful of the remote causes of disease. In particular, having passed through the fire, so to call it, of a terrible epidemic, and suffered not only in some degree its direct influence on herself, but indirectly, in consequence of the severe illness of several of her family, and of many of her neighbours, whereby regular sleep was impossible for the whole autumnal season, she experienced occasional returns of the symptoms. On these occasions sometimes one and sometimes another of the symptoms mentioned was most distressing, and attracted the

principal attention ; but she has hitherto found decided and immediate benefit from the use of the medicine.

2030. The sensation of smothering on going to bed is the most lingering symptom ; it continues occasionally to disturb her until the present time. At a time when it was particularly distressing, it is noted that about five of the pills of rhubarb, &c. taken about an hour and a half before bedtime, relieved her sensibly every night, and in a few nights made a most favourable alteration.

2031. The following is her present situation : When she takes exercise, and is not confined to the house, she is in good health, cheerful, and free from all the symptoms enumerated. When exposed to the action of the remote causes, viz. when distressed and harassed by sickness of friends, or confined by bad weather to her house, and sometimes by aversion to going out, being very sedentary in her habits, she suffers some return of the symptoms ; and first of all appears the sensation of smothering on lying down at night. On these occasions, such confidence has she acquired in the pills, that without advice or urging she immediately begins to take them, and hitherto with certainty of relief in a short time.

2032. She has never experienced any kind of inconvenience from the continued use of the aloes. It has by no means become necessary to increase the dose : she commenced with four pills ; and now, after the frequent use of them for four years, three are sufficient. She has never experienced any thing like the piles from the use of them : on the contrary, in her



tenth confinement having had a very severe attack of the piles, and having suffered excessively for a whole day, she was relieved almost perfectly by the free operation of some of the pills abovementioned, which were given for the purpose.

These cases may suffice : they might easily be multiplied.

2033. We shall now proceed to show how strongly the doctrine and the propriety of the treatment proposed are confirmed by the result of cases treated with tonics and stimulants ; and by the fact, that physicians having experienced the inefficacy of tonics, have been compelled to employ evacuants, though directly contrary to the received theory of the disease, *to prepare the patients to bear the tonics* : that is to say, the tonics are injurious, and cannot be borne *until the state of the body is altered by cathartics* ; by the fact, that even after the preparation by cathartics, tonics often fail, and then the patient is sent to drink some of the mineral waters which generally purge, and if they do not, some laxative medicine is added to help them ; by the result of cases in which, on account of the nature of the remote cause, physicians have been led to use cathartics ; and lastly by the fact, that medicines given chiefly as antispasmodics, and with essential advantage, have had a cathartic operation.

2034. First, with regard to the result of cases treated in the usual way with tonics and stimulants.

2035. Whytt, who is the best writer on the subject I have met with, in his chapter on the cure of nervous disorders proposes two objects.

“I. To lessen or remove the predisposing causes in

the body, which render it peculiarly liable to nervous ailments.

“II. To remove or correct the occasional causes, which, especially in such as are predisposed, produce the numerous train of nervous, hypochondriac, and hysteric symptoms mentioned in the preceding part of this work.”

The great predisposing cause of nervous disorders being “a too great delicacy or uncommon sensibility of the nerves in general, or of those of the stomach and intestines, or other organs in particular,” he proposes to effect the first object by the administration of such medicines as “not only strengthen the stomach and bowels, but the whole body, or those which, by their peculiar action on the extremities of those nerves to which they are applied, lessen, for a time, the too great sensibility of the whole system.”

The strengthening remedies he mentions are bitters, bark, and the preparations of iron; the cold bath, cool dry air, proper aliment, exercise, and amusement.

Those which lessen for a time the too great sensibility of the system are opium, camphor, castor, musk, the fetid gums, and the warm bath.<sup>1</sup>

Except the occasional use of blistering plasters, vomits, and gentle purging in order to remove some particular occasional causes, these are the remedies he depends on for the cure of these affections.

2036. The result may be judged of from what he says in introducing his observations on the treatment. He commences with premising almost in terms that the patient is not to expect a cure. He observes “that

<sup>1</sup> Whytt on the Nerves, p. 325 to 369.

as it is generally in the power of medicine to relieve, it is frequently beyond the power of art to eradicate the disorders we now treat of; and therefore it may be often of use to intimate this to our patients, especially to such as have fortitude enough to bear those evils which can neither be wholly prevented nor fully cured. It is further necessary to acquaint every patient that without a long perseverance in a course of medicines, diet, and exercise, no great or lasting benefit can be expected.”<sup>1</sup> This account agrees perfectly with what I have observed of the treatment of these affections in this way. The patient is always taking medicines, and never benefited by them for any time. In the following case the two modes of treatment are contrasted.

2037. The lady whose case is stated at 1811 and 1837, had had various nervous symptoms, as they are called, from her sixteenth year, fourteen years before the time of that attack. The symptoms at first were frequent fainting, pains in her breast and flying about her chest, and sometimes a discharge of limpid fluid from the stomach. In the commencement, while she was young and before the dyspeptic symptoms were strongly marked, the disease was considered nervous or hysterical.

The first physician who attended her gave her an opiate mixture to take whenever she was in pain. After a long attendance without any kind of benefit other than mere temporary relief from the anodyne mixture, she consulted another physician.

He gave her active cathartics which operated se-

<sup>1</sup> Whytt on the Nerves, p. 324.

verely, and a preparation containing asafetida. He was of no advantage to her, and after five weeks' attendance neglected visiting her when sent for, and she consulted a third.

He attributed the symptoms to a tape worm, and endeavoured to expel it with spirit of turpentine, &c. He also failed in relieving her.

The fourth attributed the symptoms to indigestion, and gave her gentle cathartics which evacuated a great quantity of black and green matter, and restored her to a very good state of health.

In a subsequent attack a year or two after, the same treatment produced the same salutary effect.

Being at a town forty miles from Winchester, she was attacked a third time, and having called a physician, informed him of the manner in which she had been successfully treated. He laughed at the treatment, gave her the old stimulant remedies, and failed entirely, after making efforts for a considerable time. She determined to be brought down to Winchester, and was immediately restored to health by the same physician who relieved her before, and in the same way.

She had by this time acquired such knowledge of the proper mode of treating her disease, that she kept herself in comparative good health for a considerable time by occasionally using such cathartic medicines as she had taken from her physician.

The next considerable attack was in the winter of 1821. Her physician no longer resided near her, and she called another. He proposed salivating her: this she refused, and urged that she wanted strong medi-

cine, meaning mercurial cathartics. He gave her jalap and calomel; calomel alone at night, followed in the morning by oil, &c. &c.; and restored her to a better state of health. This was not near so severe an attack as that in which she was first treated with mercurial cathartics.

The last attack was that which is stated at 1811 and 1837: in this she was treated, as there stated, with mercurial cathartics with signal benefit, and she was induced to submit without the least objection to any thing advised, in consequence of observing that the treatment proposed corresponded with that which she had always found beneficial to her; although at the time I was entirely ignorant of it, this statement having been made to me long after, on my inquiring, as I am in the habit of doing, of the whole course of her ill health.

It is remarkable that none of her physicians gave the disease distinctly a name. It was considered nervous; one was inclined to call it hysteria, and one said it was caused by indigestion. As the affections of the stomach were the prominent symptoms at the time of my attendance, without knowing what it had been called I named it dyspepsia.

2038. In this case the effect of treating nervous affections with stimulant and with cathartic or rather laxative medicines, is strongly contrasted. The first physician who tried cathartics failed entirely, in consequence of the operation being so active as to debilitate, and thus increase the disorder (1206. 1218).

2039. It is not difficult to explain how stimulants and tonics afford temporary relief, and why it is only temporary.



2040. The effect of the various cordial, anodyne, or antispasmodic medicines, is to excite the action of the heart, and consequently to send the blood into the arteries, as is evident from the increase of the pulse, and of the temperature and colour of the surface. The load accumulated in the cava and its branches is consequently lessened; and with it, its effects. This relief continues as long as the action of the heart is kept up; but as soon as that fails, the blood again begins to accumulate in the cava, &c.; and the effects of that state return, often aggravated by the increased weakness of the action of the heart consequent on increased action, and the corresponding increased accumulation of blood in the cava, &c.

If the patient should be tempted by the momentary relief obtained from opium, camphor, asafetida, lavender, and hartshorn, or any other warm anodyne, to repeat the dose, the same course of excitement and relief, of depression and aggravation of the symptoms, is passed through, until in the end the disease terminates in convulsions, apoplexy, &c. (1999).

2041. Tonics have very little better effect. They are more durable in their operation, without elevating the action of the heart so high, and consequently the evil is not so readily perceived: but it is well known that the long continued use of tonics and bitters is followed by death from apoplexy,<sup>1</sup> and that hysteria terminates in this disease. It is certainly, then, reasonable to conclude, that the use of such medicines in hysteria for so long a time as is recommended,<sup>2</sup> contributes to produce the fatal termination.

<sup>1</sup> Cullen's First Lines, &c. DLVII.

<sup>2</sup> Whytt mentions patients who took a tincture of bark and gentian every day for two years, intermitting now and then a week or ten days.

2042. The doctrine (2033) is also confirmed by the fact that although the commonly received theory of the disease led to the use of tonics, they have seldom been found effectual, and the aid of cathartics has been found necessary.

Physicians having observed that tonics, and particularly chalybeates, often fail, and indeed often increase the symptoms,<sup>1</sup> found it necessary to prepare the system, as it is termed, for the chalybeates, by bleeding and purging. Sydenham directs one moderate bleeding, and purging three or four times with one of the most active cathartics, now called compound extract of colocynth, and directs a very large dose, viz. forty grains.<sup>2</sup> Notwithstanding this severe evacuation, chalybeates were often found to fail; and purgatives are by some directed to be used with the tonic remedies. A purgative joined with the chalybeate and bark, Dr. Swan<sup>3</sup> says "succeeds wonderfully in such cases where the habit is pretty full, and the solids not much relaxed."<sup>4</sup> Sydenham, however, objected to this mixture, and when chalybeates after purging failed to cure, he advised the patient to drink a chalybeate water.<sup>5</sup> Swan says that "a long course of chalybeate waters is the most effectual for the purpose; &c."<sup>4</sup> They are recommended by most writers on the subject.

These waters frequently purge. Sydenham says this of these waters in general;<sup>6</sup> Hoffman says that they loosen the belly;<sup>7</sup> and Dr. Swan advises to bleed

<sup>1</sup> Boerhaave's Aphorisms, 1111.

<sup>2</sup> Sydenham's Letter to Dr. Cole, par. 103.

<sup>3</sup> The editor of the fifth edition of Sydenham's Works.

<sup>4</sup> Sydenham's letter to Dr. Cole, par. 98, note.

<sup>5</sup> Ibid. par. 108. <sup>6</sup> Ibid. par. 109. <sup>7</sup> Ibid. par. 111, note

and take a purge even before beginning a course of these mineral waters.<sup>1</sup> Sydenham moreover advises, if the chalybeate waters fail, that the patient should be sent to drink some of the hot sulphur waters,<sup>2</sup> which are known to be purgative, some of them to excess. Boerhaave, who, like Sydenham, treats of hypochondria and hysteria under the same head, says the disease increases on taking medicines which evacuate roughly and weaken (2037), or such as put the fluids into violent motion; and advises mineral waters, waters made effectual by the addition of salts, loosening mercurials, medicines which evacuate from the womb, or the hemorrhoidal tumours, and afterwards exhilarating and strengthening medicines.

2043. It is also confirmed by the result of cases in which, on account of the nature of the remote cause, physicians have been led to use cathartics (2033).

2044. Whytt directs in those cases in which he supposes the nervous symptoms are produced by a morbid humour in the blood, that the cure should be attempted by mild mercurials, and the purging mineral waters. He says he found twelve grains of Ethiop's mineral (hydrargyrum sulphuretum nigrum) every night at bedtime, and sometimes night and morning, and a drachm or a drachm and a half of the sulphate of potash in a pint of water, to be very successful at least in slighter cases. He sometimes directed a draught of sea water instead of the abovementioned solution.<sup>3</sup>

2045. When the nervous symptoms proceed from

<sup>1</sup> Sydenham's Letter to Dr. Cole, par. 109, note.    <sup>2</sup> Ibid. par. 111.

<sup>3</sup> Whytt on the Nerves, p. 378.

an obstruction of the menses, he found different modes of treatment effectual, but cathartic medicines are mentioned in all of them.

2046. When the obstruction was supposed to proceed from too poor blood, bitters, bark, and steel, were given to prepare the blood, and *tinctura sacra* to determine it to the uterine vessels.

If a plethora was supposed to cause the obstruction, he directed bleeding in the foot and gentle purges.

If the effects were attributed to thickness of the blood, frequent vomits, and laxative mercurial pills, or gentle purges with calomel, are directed.

If to spasm of the uterine vessels, the warm bath, oily draughts, and pills of aloes, asafetida, extract of black hellebore, and saffron.

In the intervals between the returns, he used the warm bath, and aloetic pills (Rufus's pills).

When nervous symptoms were the consequence of painful and defective menstruation, he used with success, bitters, the warm bath, and aloetics, for two or three months.

When the symptoms were produced by deficient menses in the decline of life, they were generally lessened, and sometimes removed, by frequent small bleedings, gentle stomachic purges, and issues.<sup>1</sup>

2047. When the nervous symptoms were produced by suppression of the hemorrhoidal flux, fomentations and aloetic medicines are advised.<sup>2</sup>

2048. When the symptoms appear after the healing of old sores, or of the sudden disappearance of erup-

<sup>1</sup> Whytt on the Nerves, p. 382 to 386.      <sup>2</sup> Ibid. p. 386.

tions on the face, blisters or issues, and mercurial purges, are advised.<sup>1</sup>

2049. When the symptoms are supposed to proceed from obstructions of the abdominal viscera, vomits and purges frequently repeated, are advised, as the tartrate of potash, and sulphate of potash: of the former from a drachm and a half to three or four drachms, and of the latter from two scruples to a drachm and a half in a pint of water, every morning for two months or longer. The laxative mercurial pills are also recommended once in two or three days; and likewise the solution of corrosive sublimate, together with a gentle purgative once in four or five days.

2050. Whytt mentions two cases of hemicrania which were cured with the laxative mercurial pills, one of them in twelve days, without any return. One of the patients was salivated, the other was not.<sup>2</sup>

2051. It will be observed that cathartics constitute a part of every plan of treating these affections; indeed the main dependance in almost every one.

2052. The superiority of cathartics over tonics, &c., is manifested by the shorter time in which the former relieve the patient. Whytt speaks of a case in which, with a tincture of bark and bitters, five or six cathartic pills were given every other night, and he was successful in two or three months.<sup>3</sup> He speaks of gentle purges succeeding in some cases in two months;<sup>4</sup> and states a case in which, by a vomit and a purge, followed by a decoction of bark with vitriol,

<sup>1</sup> Whytt on the Nerves, p. 387.

<sup>2</sup> Ibid. p. 502, note.

<sup>3</sup> Ibid. p. 385.

<sup>4</sup> Ibid. p. 412.



and a dose of rhubarb and calomel every five or six days, the patient "at the end of two months was almost quite free from all her complaints."<sup>1</sup>

On the contrary he mentions two cases in which the patients took his tincture of bark and gentian for near two years, and were still troubled with some of the symptoms; and says he could add *many other* cases in which the same remedy has been remarkably useful.<sup>2</sup> He also mentions one in which opium was taken every night for eight or ten months, and the patient was relieved from all his most troublesome complaints; but found it necessary to continue it every other night, gradually lessening the dose, and sometimes increasing it, for another year.<sup>3</sup>

2053. The doctrine is also confirmed by the result of cases in which medicines given as antispasmodic have acted on the bowels.

2054. In the first years of my practice these cases gave me a great deal of concern, and occasioned much thought; and I considered myself fortunate in having met with Whytt on the Nerves and Nervous Disorders, and used his prescriptions almost alone. By degrees all these, however, were given up for one which produced a better effect in the different nervous diseases than any thing I had ever tried. A number of old cases which had baffled older physicians were greatly relieved, and the pills obtained very great credit in the neighbourhood. They were composed of two grains of asafetida, one of aloes, and one of the sulphate of iron, to each pill. Whytt added ginger, and

<sup>1</sup> Whytt on the Nerves, p. 414.

<sup>2</sup> Ibid. p. 331, note. <sup>3</sup> Ibid. p. 366.

mixed the mass with a tincture of aloes. Those retained are the essentials. The mass mixes with a little trouble without any liquid, even if the asafetida should be dry enough to break; it becomes soft by being beaten. After a short time I used instead of the above, equal parts of the three articles, asafetida, aloes, and sulphate of iron. Even in this proportion they will mix into a mass without any liquid, the two latter ingredients being powdered before they are put with the former.

2055. This prescription was used for many years with great advantage, under the idea that it was an excellent tonic and antispasmodic. It is however a cathartic in the full sense intended in these pages (1579). It may be observed here that the sulphate of iron itself is a cathartic; I have observed this operation from it when given alone by old women with very different views, and have in consequence made some experiments with it and found it cathartic.

2056. This prescription, however, has been given up for a number of years, for the more agreeable and more effectual one of rhubarb, aloes, and calomel. These, or the more active pills when these fail (1583, &c.), have been my reliance in every case, except the occasional use of an emetic in violent paroxysms whether with or without convulsions. In the latter case it is often difficult to get any thing down, as the patient is sometimes entirely unconscious; it may however be done by persevering in pouring into the mouth a solution of tartarised antimony, or diluted wine of antimony. A glass vessel ought not to be used in these cases, as they are apt to be broken in the patient's mouth.

2057. Emetics might be used advantageously at other times than those abovementioned. They rouse the system, and no doubt contribute greatly to restore the patient (1551). Whytt has given a case of convulsions in which they were mainly relied on in the cure of the patient. She was attacked on the 20th of July: she was blistered, and took camphor, musk, opium, asafetida, castor, and bark, until the 9th of August, without deriving any advantage from them. For the latter part of that time she had had thirty paroxysms in a day, of asthmatic breathing, fainting, or convulsions. On the 9th of August she took an emetic of ipecacuana, and threw up a great quantity of dark green bile: she had but one convulsion afterwards for the whole day. On the 10th and 11th she took no emetic, and had twelve fits on the first day, and fourteen on the second. On the 12th and 13th she took an emetic each day, and had no fit on either. On the 14th she took a decoction of tamarinds and senna, which purged her five or six times, and she had six fits of convulsions, or fainting (2038. 2042, Boerhaave, &c.). On the 15th no medicine, and she had almost twice as many fits as on the day before. On the 16th she took an emetic, and escaped entirely. "Every other day for a week, she took a vomit of pulverized ipecacuana five grains, and tartar emetic one grain, and at night sometimes a small dose of elixir sacrum; by which means, before the beginning of September she got quite free from the fainting fits and convulsions."<sup>1</sup>

2058. It is evident from what has been stated that

<sup>1</sup> Whytt on the Nerves, p. 456, note.

tonics are very ineffectual; that even those who have been led by their theory to place their dependance on them, have been compelled to call in the aid of cathartics to prepare the system to bear the tonics, which certainly implies that the latter are injurious, as Boerhaave asserts;<sup>1</sup> that when, notwithstanding the preparation with cathartics, tonics have failed, the patient has been directed to drink the chalybeate waters which often purge; that to insure a good effect from these, a purge has been advised before beginning to drink them; and that, when they fail, the patient has been sent to the sulphur waters, which universally purge (2036 to 2042).

2059. It is further evident from the foregoing cases, that gentle purges have been the main dependance in very many cases even of those who in general relied on tonics (2043 to 2051); and that they ought to be so in all cases, from whatever cause they may arise (2015 to 2032. 2054).

2060. It is also evident that emetics are the best remedy in sudden attacks (2014), and a very important aid to be used occasionally throughout the cure (2057). Indeed the combined operation of gentle continued purges and occasional emetics, there is reason to believe, will leave nothing to be desired on the subject; and when the constitution is not broken down entirely, they promise every thing that can be expected from medicine.

2061. We may therefore promise our patients much more than is proposed above (2036): we may promise them that if they will take the medicine regular-

<sup>1</sup> Boerhaave's Aphorisms, 1111.

ly they will surely be relieved, and if they avoid the remote causes they will continue well: at the same time we ought to warn them, that if they expose themselves to the operation of the remote causes, they will surely have a return of their complaints.



## CHAPTER XXIX.

### OF HEMORRHAGE.

2062. Hemorrhage is a preternatural discharge of blood from the vessels of the body. It is sometimes produced by violence; but we shall here confine our attention to hemorrhages proceeding from some internal cause.

2063. Hemorrhages proceed from the external vessels of the head; from the ears, the nose, the internal surface of the mouth; from the internal vessels of the head into the cavity of the cranium; from the vessels of the liver into the duodenum, and thence out of the body upwards and downwards; perhaps also from the vessels of the stomach and bowels; from the vessels of the kidneys through the ureters into the bladder, and thence out of the body through the urethra; from the vessels of the uterus through the vagina; from the hemorrhoidal vessels; from the subcutaneous vessels between the cutis and cuticle, producing purple spots, from which the blood flows out when the cuticle is broken; and from the vessels of the lungs.

We shall consider here only those hemorrhages connected with the general circulation; omitting, for the present, the hemorrhage from the lungs.

2064. The remote causes have been little attended to. Darwin mentions several cases of hemorrhage

occurring in persons who had made excessive use of fermented liquors. He says, "I have seen two elderly men and one middle-aged woman, all of whom had drunk too much fermented or spirituous liquors, and had been for some months gradually sinking, who were seized with a ceaseless hemorrhage from their mouths, and from every part of the skin, where they happened to scratch themselves, which continued some days till they died."<sup>1</sup>

He mentions other cases in which black blood was discharged from the bowels of persons who had drank spirituous liquors to excess.<sup>2</sup>

Fermented liquors, we have seen, weaken the action of the heart (95. 96), and thereby produce accumulation of blood in the venous cavity (1218).

2065. Hemorrhages are a very common occurrence in low fevers. Darwin speaks of them as occurring in putrid fevers.<sup>3</sup> This fever, which is the same as the typhus (801), has been shown to be the autumnal fever of England produced by miasmata (940, &c.). Hemorrhages are also common in our autumnal fevers with weak pulse, delirium, subsultus tendinum, black and green discharges from the bowels, &c. A great majority of the cases of hemorrhage in my practice have occurred in such circumstances. In the autumnal season of 1823, two cases occurred in houses near together, and not far from a mill pond: the worst case was just below a broken mill dam. There were several other cases in 1823 and 1824, all of which occur-

<sup>1</sup> Darwin's *Zoonomia*, I. 2. 1. 5.

<sup>2</sup> *Ibid.* I. 2. 1. 8. and sect. xxvii. 2. 1.

<sup>3</sup> *Ibid.* I. 2. 1. 5. and sect. xxvii. 2. 1.

red near streams of water, in remarkably sickly situations. I have remarked that hemorrhages appear particularly in cases in which evacuations have been neglected ; whence it is evident that they would be much more frequent but for the free evacuations common in our practice.

2066. Hemorrhage occurring as one of the symptoms of autumnal fever, is therefore one of the effects of the chain of causes which have produced the other symptoms. The remote causes of fever therefore are remote causes of hemorrhage, and accumulation of blood in the venous cavity is its proximate cause. This is confirmed by a variety of considerations.

2067. Hemorrhages are very often periodical ; and the discharge is salutary, inasmuch as if the vessels do not allow a passage to the blood, vertigo, headach, and sometimes convulsions or apoplexy, are the consequence. The morbid accumulation is the real disease ; of which the discharge is an effect or symptom. As the body, so far from suffering, is benefited by the discharge, more blood is continually formed than is necessary for its purposes, and therefore more than is employed in the circulation ; the superfluous blood must be left in the cava and its branches (1386) ; and consequently must be continually accumulating from one periodical discharge to another, and be greatest at the moment the hemorrhage commences.

2068. The suppression of the menstrual discharge is often followed by hemorrhage from the stomach or other parts ; and when the former returns the latter ceases.<sup>1</sup> In this case the suppression evidently fills,

<sup>1</sup> “ Mulier sanguinem vomens, profusis menstruis, liberatur. Quæ

in the most direct manner, the venous cavity (1256, &c.); and the hemorrhage, appearing during the accumulation, and ceasing as soon as it ceases, evidently depends upon it as its cause.

The two discharges alternating, and vertigo, &c. appearing if neither occur (1400. 1401. 2067), and disappearing if either do, one is evidently a substitute for the other, and both are effects of one cause, urging a discharge from one part or the other (1398).

The same may be said of the hemorrhage occurring on the suppression of an habitual discharge of blood from the hemorrhoidal vessels.

2069. The same (2066) is confirmed by the presence of the marks of accumulation of blood in the venous cavity in hemorrhages, and of the various effects of the same accumulation.

2070. In hemorrhages the pulse is generally weak, and the patient often pale (1219). Even in hemorrhage into the cavity of the cranium this is often the case (1645. 1694. 1729).

2071. Hemorrhages occur in connexion with tumefied spleen.<sup>1</sup> In malignant fevers, and particularly in their decline, it stands connected with a variety of effects of accumulation of blood in the venous cavity (2065).

In 1824 I had a patient in a house situated within fifty feet of a stream of water, which ran in the same direction in which the wind generally blows in the

*menstruis non purgatur, si sanguinem ex naribus fudit, omni periculo vacat.*" Celsi de Medicina, &c. Lib. II. cap. 8. A woman vomiting blood is freed from it by profuse menstruation. One who has no menstrual discharge is free from danger if she has a bleeding from the nose.

<sup>1</sup> Cullen's First Lines, &c. MXXVII.

autumnal season, so that she was remarkably exposed to the miasmata arising from the bed of the stream. There were others sick in the same house and in the neighbourhood. While apparently recovering she was observed to be unusually pale, and had an unusual tremor of her hands and fingers. After this had continued for several days, she began to discharge black blood from the nose, and from the internal surface of the mouth, particularly from a part which had lost the skin before she was taken ill: the blood appeared on every part of the surface of the mouth in the same manner that the saliva does, without the appearance of a stream from any part in particular. She finally discharged black blood freely from the bowels.

2072. A patient with dyspeptic symptoms of long standing, on one occasion vomited black blood and passed a great quantity for several days from the bowels (1837).

2073. Hemorrhages are preceded by vertigo, head-ach, stupor, &c., known effects of an accumulation of blood in the venous cavity (1318, &c.); and if the blood fail to find vent in the usual way, apoplexy is very apt to follow.<sup>1</sup>

2074. This doctrine is also confirmed by the fact that the blood discharged in hemorrhages is venous blood. The only apparent exception to this is the blood discharged from the lungs in hæmoptysis; but this is not an exception: the blood in this case is of the colour of that of the pulmonary veins. If it were arterial blood it would be black.

2075. In hemorrhages the pulse is sometimes strong:

<sup>1</sup> Cullen's First Lines, &c. DCCCXVII.



in which case the hemorrhage is called an active one, conveying the idea that it is the effect of the increased action, or of the increased impetus of the blood in the vessels pouring it out.<sup>1</sup>

2076. Increased action is, however, preceded by the marks of an accumulation of blood in the venous cavity, and is itself an effect of such accumulation. Even in those hemorrhages which are classed as active, it is admitted that there is often no observable febrile action.<sup>2</sup> It is remarked, too, that it is in the decline of fevers, when the pulse has sunk, that hemorrhages most commonly appear. That which is often not present when an effect occurs, cannot be necessary to its production: therefore the increased action in the active hemorrhages cannot be the cause of the discharge of blood.

2077. It is farther to be observed that in epistaxis, which of all the hemorrhages here to be considered (2063) has the strongest claim to the character of an active hemorrhage, though the pulse is sometimes strong when the discharge of blood commences, yet does it continue when the patient is reduced to excessive weakness and paleness, and the pulse is feeble.<sup>3</sup> The effect continuing, it is evident the proximate cause continues also; and it is impossible, under these circumstances, to believe that the cause is increased action.

2078. It is moreover difficult to conceive how increased action could possibly produce a discharge of blood, if there were no obstruction to its free passage

<sup>1</sup> Cullen's First Lines, DCCXXXVI.      <sup>2</sup> Ibid. DCCCXIV.

<sup>3</sup> Medical Recorder, No. 1, p. 16.

into the veins. Effusion from the exhalent branches of the arteries could not possibly occur without dilatation (1371, &c.); which cannot take place without obstruction below the points at which they branch off, and this obstruction can only arise from extreme fulness of the veins (1384. 1385). It cannot be a fixed obstruction, but must be periodical or occasional, because the effect is so; and such an obstruction cannot arise in any other conceivable way than the one pointed out, viz. from accumulation of blood, removed by the discharge, and recurring periodically or occasionally from the excessive quantity of blood made, which gradually re-produces the obstruction.

2079. If it be alleged that active hemorrhage proceeds not from dilatation, but from rupture of the vessels, let it be considered that the latter requires more force than the former; that the force requisite to rupture a vessel being necessarily a distending force, cannot take place without increased fulness; and that increased fulness of the arteries cannot occur without accumulation of blood in the veins (1313).

2080. Accumulation of blood in the veins, then, is adequate to the production of the effect; it is always present when the effect is produced; increased action, alleged to be the cause, is itself an effect of this cause, and is incapable of producing hemorrhage without the aid of increased fulness of the veins. It is evident, therefore, that accumulation of blood in the venous cavity is the proximate cause of hemorrhage, even when febrile action exists.

2081. The treatment I have found entirely successful confirms, in a remarkable manner, the truth of

this conclusion, as will appear from the cases to be stated.

2082. It is common to distinguish hemorrhages by the part the blood flows from. It is well enough to do so for the sake of distinction in conversation ; but they all, except hæmoptysis, proceed from accumulation of blood in the same cavity, they are often combined, and the same treatment cures all.

2083. Vomiting of blood, hæmatemesis, very seldom occurs without a similar discharge from the bowels ; and sometimes the discharge is from the bowels alone. I have watched the changes in the black discharges from the bowels from day to day ; and have observed them become blacker and blacker, but still stain a white substance yellow, and at length become black without producing such a stain, the number and size of the passages continuing, and finally become pure black blood. On the other hand, sometimes the passages are at first pure black blood, and gradually become black, green, and finally yellow bile (1837). Both these changes indicate that the liver is the source of the discharge.

### *Treatment of Hemorrhage.*

2084. I have been led by the views given above of the proximate cause of hemorrhage, to attempt the cure with cathartics, and have found the practice completely successful, as the following cases will show. Sometimes, while a patient is under the daily operation of cathartics, discharging black or green bile, black blood suddenly appears instead of what had been passed before. Whether this occur in febrile

affections, or in chronic diseases, as dyspepsia (1837), I have invariably continued the cathartics, and have never seen an instance of evil arise from it.

2085. In February, 1822, I visited a lady who had been discharging blood freely for a day or two. I found her leaning on her elbow in bed, and spitting profusely and constantly black blood, which she complained smarted her lips; the blood evidently proceeded from several parts of her mouth; there was no vomiting. There were purple spots under the skin in various parts of the body, arms, face, and on the inside of the lips. She had had several slighter attacks of the kind; and she had observed that the day after the bleeding stops, the spots turn very black, and are a week going off. The smaller ones on the arms come through the cuticle, and on this occasion I scratched off several like minute scabs, which were black: the large spots gradually disappeared.

She had been for some time previous to this attack, very sallow; she had had a pain in her head; and her passages, from the use of cream of tartar, were dark. A fortnight before, she had passed blood from the bladder. Her pulse was, at the time of the hemorrhage, very moderate, and her skin cool. The purple spots beneath the cuticle of the lips appeared like blood smeared over her mouth, and gave the whole scene a dreadful appearance.

2086. Attempts had been made to stop the discharge by strong astringents: these had no effect, and I conceived that if they had had any, it would have been a bad one. In the preceding autumnal season I had been using the muriatic acid in a number of cases of

fever, dysentery, &c., with excellent effect. It was given to the extent of a tea-spoonful in a quart of water sweetened to the taste of the patient. Its obvious effect was to purge. Viewing this hemorrhage as proceeding from precisely the same state which exists in cases of the autumnal epidemics without increased action of the heart (1669 to 1671), I advised that she should take the muriatic acid, a tea-spoonful to a quart of water; and also that she should bathe her limbs with the same diluted.

She took it pretty freely on the first and second day, and was greatly benefited, the spitting by the second day being very much lessened. On the third, observing the action of the bowels was rather moderate, she took of her own accord senna and cream of tartar, which operated frequently and copiously, discharging black matter in abundance. Very little blood was spit up.

On the fourth day there was one dark passage early in the morning, and one remarkably yellow griping one in the evening. The spit was free from blood after 10 o'clock. She continued the cathartics a few days and recovered.

2087. During the autumnal epidemic of 1823 (362), I had several cases in which there was a discharge of black blood from the bowels, with purple spots on the skin of different sizes and shapes. In these cases, I believe without exception, there was no fever: indeed they were precisely such as the case just stated in every observable particular, excepting only that in the former the discharges were downwards; in the latter, upwards.



2088. In these cases the cathartic pills were given so as to operate on the bowels, without any other medicines, and with the best effect. There was only one case which terminated in death: a child had been passing blood profusely for a week when I was called to see it, and was almost gone; the spots were as large as a dollar. Some directions were given, but little or no attention was paid to them, the parents having lost all hope of the child's living.

2089. A young woman aged about twenty, rather thin, and pale, had the common autumnal fever in the last of July and the first of August, 1824. She was treated in the common way, except that very little calomel was used. She seemed to be recovering slowly, but had an unusual tremor or subsultus tendinum of the fingers and hands.

On the 6th of August she had a bleeding at the nose and from various parts of her mouth, the blood running into it precisely as the saliva does: it could be seen to flow in, but not exactly where from, except from a small excoriation, which she had had before she was taken sick. She took two cathartic powders.

August 7th. The medicine had had little or no effect on the bowels; the hemorrhage had increased; a number of irregular purple spots of different sizes had appeared on her face and neck. She was very cold and pale. She had a blistering plaster applied to the back of her neck; but the reliance was upon cathartics. She took, in the course of the day and night, four scruples of scammony.

Aug. 8th. The medicine operated but slightly. The bleeding from the nose and mouth continued; though

it was not so considerable as on yesterday morning. The three or four passages which she had had were entirely of blood, black and fluid. She was in a cold sweat, with a low pulse.

During this day and the following night, she took of scammony above a drachm, in three powders, and of jalap and aloes above two drachms each, made into fifty-two pills.

Aug. 9th. She had vomited in the night twice, had been very cold, and bathed in a cold sweat; her pulse had been at times not perceptible. This morning there had been a passage, a mixture of blood and dark matter, very offensive. She was still cold, pale, and bathed in sweat, with a weak pulse, and lay, on a very hot day, wrapped in a thick blanket.

She had forty-eight pills, made of scammony, aloes, and rhubarb, of each four scruples, and took four every hour. A small blistering plaster was applied to each leg.

In this situation I was compelled to leave her all day; but she was nursed by ladies on whom I could completely depend for strict attention to the directions given. On arriving at the house in the evening almost afraid to inquire about her, I was greatly relieved by finding her much better. The medicine had operated well four times; the passages were of a dark colour, with little or no blood. She had discharged no blood from the mouth since morning; the skin had become warm and dry.

The blistering plasters had drawn indifferently on one leg, and well on the other. It may be observed that she had a blistering plaster on the seventh also,

but the medicine had not operated, and the hemorrhage continued. On this day the medicine operated well, and the hemorrhage ceased.

Twenty-eight more pills of the same kind were left to be taken through the night.

Aug. 10th. The operation had been free; the passages not so dark.

She looked much better. She took, in the course of this day, twenty-four pills of the same.

Aug. 11th. The operation still free; the passages of a lighter colour.

She continued to take the cathartic medicines every day, in sufficient quantity to operate well, and in ten days from this date, recovered. In this time it was necessary on one day to bleed her.

2090. In October, 1824, a yellow man desiring my assistance, I found him passing an immense quantity of blood from the bowels: he was quite cool, and had a very moderate pulse. He took immediately half a drachm of jalap and twelve grains of calomel; and sixteen cathartic pills were left with him, to keep up the purging. He had a blistering plaster also.

He rode five miles, six days afterwards, to see me. The medicines had operated well, and the hemorrhage had ceased immediately afterwards.

2091. A young woman of twenty or five and twenty years of age, in the same autumnal season, with remarkable disorder of the stomach, particularly extreme flatulence, with pale and sallow complexion, cool skin, and moderate pulse, began to discharge a considerable quantity of black and fluid blood very often in the course of the day.

Cathartics were employed here also, to greater extent than I ever before used them; but without the least apparent effect, good or bad. There was not perhaps in a week, one single discharge from the bowels except blood; and this, during the use of cathartics, became less and less until it was inconsiderable.

In the same room lay her sister, about the same age, and affected like her in every respect, except that she was not so remarkably troubled with flatulence, nor did she pass any blood: neither did she pass any thing else: the cathartics employed were the same in both cases, to equal extent, and with like want of success. This was going on for a week; Dr. Stribling visited them with me on the fourth day, and to him I predicted the death of both, resting solely on the single circumstance of there being no operation whatever. They were at that time able to rise and sit up in bed, or to get out of bed without help.

They both died in four days after, without having had a single operation.

2092. It is to be observed in this case, that the hemorrhage lessened and disappeared while giving the cathartics, so as to bring the two cases to a nearer resemblance than they had at first; and as the failure of the medicine was the same, and the event the same in both cases, it is evident the cathartics had no effect on the hemorrhage calculated to deter us from the use of them in similar cases.

2093. A young man who had the fever in 1824, while using mercurial cathartics with the usual effect of discharging bilious matter, with evident advantage, began to pass black blood in considerable quantity.

His family were alarmed, and requested me to visit him. His physician informed me that he was about to give him an opiate, with a view to check the discharge. He was urged to go on with his first plan of evacuating: he did so, and the patient recovered without difficulty, and his health was unusually good for some time after.

2094. During the autumnal season of 1825, a lady about sixty years of age, had various morbid symptoms, flushings of the face, red eruptions similar to erysipelas, which appeared and disappeared frequently and in a short time, pain and giddiness of the head, and disordered stomach; such symptoms, in short, as frequently precede an attack of fever. At length she passed some very black blood, and requested my assistance. I found her with that sense of weakness and faintness frequently met with in the autumnal season, with weak pulse, and cool skin, no appetite, headach, and passing blood frequently, of a black colour and fluid.

2095. She took of scammony and calomel, and scammony and rhubarb, enough to produce a free operation on the bowels. The discharges were sometimes blood, sometimes black or green bile. When the discharges were most free, there was least blood; and without any other medicine she entirely recovered in a short time.

2096. A black woman aged twenty-six, of very large size, complained, on the 8th of July, 1826, of headach and pain in her right side, with indifferent appetite, and a sudden rising of blood into her mouth. A pint had, she said, "come up." It was black and fluid,



there was no vomiting, no fever. She took six pills of jalap, aloes, and calomel.

They operated well ; the passages were dark ; there was no more blood. Still having headach and bad appetite, she took a few more pills, and recovered in a few days.

2097. For a case of hemorrhage from the bowels, in which the cathartics were continued with the best effects, see the chapter of Dyspepsia (1837).

2098. In discharges of blood from the kidneys, I have used cathartics with the same success. They sometimes alternate with those from the bowels (2085). I shall not dwell on them.

2099. I have frequently met with slight hemorrhages from the gums, and sometimes during autumnal epidemics people awake with the stain of blood on their lips. A single cathartic will often carry off this disposition : if the discharges are dark, they ought to be continued.

2100. Sometimes purple spots appear on the skin without hemorrhage passing out of the body ; and at times these spots do not assume quite so black an appearance, but are redder. They are called by various names, but are all of the same nature and origin, and are all speedily and effectually removed by the cathartic medicines frequently mentioned.

2101. We ought not to be deterred from giving cathartics by an excessive discharge of blood. The greater the discharge, the greater is the press of blood for a vent, the greater the accumulation of blood in the venous cavity, and the greater the necessity for a vicarious discharge to relieve this dangerous on-

They cannot do injury in any case ; even if they excite vomiting, as will presently appear. I have never seen an instance of death from delay in effecting an operation, although in one of the cases above stated (2089) this was very considerable. In the meantime, if the physician should be too anxious to wait, he may have recourse to some remedy from which he may hope for more speedy effect, as blistering, &c.

2102. Blistering has been very serviceable in some reported cases of epistaxis: in those cases the patient was excessively reduced by the loss of blood ; in one instance, the hemorrhage from the nose had continued eleven days.<sup>1</sup> In the cases above stated no decided effect appeared to be produced by them.

2103. I have lately met with a statement of two cases of hæmatemesis in which an emetic produced an admirable effect. From the accompanying symptoms, viz. palpitation, oppression about the heart, cold surface, and weak pulse ; and from the effect of the emetic, viz. diffusion of heat over all the surface, and full, soft, and regular pulse, I have no doubt that this is the proper remedy for *immediate relief* in this case. The correspondence in the symptoms, and the effect of an emetic, in these cases and one of the cases of hysteria stated above, is striking (2022. 2014).

2104. It is proper to observe, however, that dependance ought not to be put in an emetic for more than temporary effect. It excites the action of the heart, and sends the blood to the surface, thus diffusing warmth throughout the frame ; but this excitement is in many cases temporary. If the heart be much weak-

<sup>1</sup> Medical Recorder, No. 1, p. 16.

ened by continued action of the causes (as is generally the case when hemorrhage takes place, because it is the effect of a high degree of accumulation of blood in the venous cavity), the excitement produced by an emetic soon subsides, the blood therefore again accumulates in the venous cavity, and the hemorrhage returns, perhaps with other effects of this accumulation.

2105. Thus in one of the cases stated, after the patient was relieved of the hemorrhage, being in a very weak state, she took cordials and light nourishment frequently, in very small quantities, whereby "she began to acquire a little strength in a few days, but soon after there came on anasarca and ascites," &c. These symptoms, however, in a short time gave way to *ap-erients* and diuretics.

2106. In the other case, after the patient was relieved by the emetic, he took a mercurial purge, which brought away a great quantity of black matter. He took, however, but one cathartic, and after a few days the symptoms began to return, when they were removed by another emetic, "and he since continues to improve." The last words imply that the account was written before the event was known. There can however be no doubt, from the result of the cases stated above, that if the cathartics had been repeated every day for some time, he would have rapidly recovered.<sup>1</sup> In not one of the cases stated above, has there been any relapse, but every one of the patients recovered well, and continues in good health, except one, who was engaged this summer in clearing a marsh, and had some chills.

<sup>1</sup> Medical Recorder, No. 28, p. 728. 729.

2107. It is obvious, therefore, that cathartics are the main dependance for a *lasting cure*, and emetics for *immediate relief* from the hemorrhage.

2108. It has been a question with physicians whether bleeding is proper or not in hemorrhages. It has been urged that as the discharge proceeds from a plethoric state, we may expect that when the quantity of blood necessary for the relief of the system is poured out, the effusion will spontaneously cease;<sup>1</sup> except when there is an inflammatory state of the system, which may cause the effusion of a greater quantity of blood than is necessary.<sup>2</sup>

2109. In the latter case it has been thought necessary to employ blood-letting, in order to moderate the discharge; in the former, that the blood discharged during the hemorrhage answers the purpose of an evacuation in any other way.<sup>3</sup>

2110. The sum of the doctrine as to practice is, to suffer a hemorrhage with a weak pulse to proceed, unless it become so profuse as to endanger life,<sup>4</sup> and when the pulse is strong, to check it by bleeding, &c.

2111. In the hemorrhages we are considering (2063), a strong pulse is a very rare occurrence, even in bleeding from the nose. I have never seen such a pulse in these hemorrhages. If it should occur however, there can be little question but that it would be very safe to leave the hemorrhage to itself until the pulse is reduced: if the discharge be considerable, this will soon be effected; if not, there is no immediate danger.

<sup>1</sup> Cullen's First Lines, &c. DCCXC.    <sup>2</sup> Ibid. DCCXCI.

<sup>3</sup> Ibid. DCCXCIV.    <sup>4</sup> Ibid. DCCXCVII.

2112. In a hemorrhage with a weak pulse however, or if the pulse be strong, as soon as it is reduced, it is certainly unsafe to allow the discharge to continue; because, as soon as it becomes so considerable as to weaken the action of the heart, its direct tendency is to perpetuate itself as long as life lasts.

2113. A certain portion of the blood, by the action of the heart, is constantly passing out of the venous cavity, and from the arteries there is a certain quantity constantly passing into it. When the action of the heart is weakened, less is sent out; but the arteries, whose action ceases only in syncope or death, continue to send it in: less is carried out, the same received.

2114. If this occur without hemorrhage, it is evident that there would be a constant increase of fulness. If it be the effect of hemorrhage, and the quantity discharged be less than the quantity continually left by the heart in the cava, the fulness is kept up with its effect, the hemorrhage: the hemorrhage continues to weaken the action of the heart; the weakened action to keep the cava full; and the fulness to continue the hemorrhage.

2115. This may continue not only until the action of the heart ceases; but, as the action of the arteries continues, *except in syncope*, after the cessation of the action of the heart, the hemorrhage may continue after the heart has ceased its action; and until the arteries have expelled the blood entirely from their cavity; the blood, instead of accumulating in the venous cavity, passing out of the body.

2116. This occurred in a case mentioned by Mor-



gagni. A woman subject to hysterical affections, being greatly disappointed respecting the sex of a child of which she had just been delivered, "was seized with such an anxiety of mind, that her pulse immediately sunk, and her body became cold."

"As therefore neither pulse nor heat returned, within an hour and a half from the time that they began to be deficient, death succeeded; the flux of blood from the uterus, which you will be surprised at in this defect of pulse, continuing in its usual state till the very last extremity of life."<sup>1</sup>

2117. I have seen a similar occurrence in a discharge of black blood from the mouth: the patient had been long ill, under the care of another physician; she had had an autumnal fever of high grade; she was emaciated, weak, without appetite, had daily headach, and was excessively costive: her pulse was uniformly weak. In this situation she suddenly began to discharge blood from the mouth: it flowed without effort by coughing or vomiting, except an occasional slight heaving: the blood was dark venous blood. She had several of these hemorrhages at intervals: in the last of them the discharge continued until she sunk and was thought for a short time to be dead: she continued in that state for many hours before she revived. In this case the hemorrhage continued, as Morgagni says, until the very last extremity of life.

2118. There is, notwithstanding, a necessity for evacuation; because the hemorrhage shows there is too much blood in the vessels from which it proceeds (2066). The mercurial cathartics effect a discharge

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xlviij, art. 44.

from the venous cavity, from the small branches of which these hemorrhages proceed; and thus lessen the accumulation in the venous cavity, at the same time that they excite and support the action of the heart.

2119. The discharge from the hemorrhage lessens the action of the heart, keeps up the effusion, and therefore sometimes terminates in death: that from the liver is equally effectual in reducing the fulness of the vessels, at the same time that the medicines employed to effect it, keep up the action of the heart; thus directly supporting the system, and indirectly as well as directly reducing the fulness of the venous cavity.

2120. The effusion of blood is therefore very far from answering the purpose of an evacuation in any other way (2109); and the very reverse of the practice recommended (2110) is proper, viz. to suffer a hemorrhage from any part of the venous cavity (2063) to proceed, if the pulse be strong, until it is reduced; and then, as also in all cases in which the pulse is weak from the beginning, which is almost always the case, to check it as soon as possible by substituting for it another evacuation from the venous cavity, viz. discharges from the liver (1428).

2121. In considering this subject much confusion has arisen from not distinguishing between plethora of the arteries and the veins; nor between hemorrhages from the lungs and from the vessels of the general circulation, or the aortic system.

2122. Fulness or plethora of the veins is greater in proportion to the weakness of the pulse (1218), and

consequently the emptiness of the arteries. And therefore when hemorrhage is produced by abundance of blood in the veins, lessening the quantity in the arteries by bleeding, will not lessen the hemorrhage, but by weakening still further the action of the heart, increase the fulness or plethora of the veins, and consequently the hemorrhage.

2123. In hæmoptysis, although the blood be venous (2074), the effect of bleeding is different on account of the insulated state of the pulmonary vessels; and their separation from the rest of the sanguiferous system. Weakening the action of the heart in this hemorrhage has a very different effect from that which it has in hemorrhages from the other parts of the body.

2124. In the latter, weakening the action of the heart increases the fulness of that cavity from which, on account of this fulness, the blood is proceeding; and consequently increases the hemorrhage.

2125. In hæmoptysis, however, weakening the action of the heart, by filling the venous cavity, withdraws blood from the general circulation, and less is sent to the lungs; and the hemorrhage is diminished because the supply is cut off. Bleeding therefore is the first thing in hæmoptysis, but not in other hemorrhages, unless the blood be taken in such quantity as is not sufficient to weaken the pulse.

2126. On the same ground, in hæmoptysis those medicines which diminish the action of the heart are serviceable, and stimulant and tonic medicines are injurious; while in the other hemorrhages, bark, steel, wine, and opium, are recommended.<sup>1</sup>

<sup>1</sup> Darwin's *Zoonomia*, I. 2. 1. 5. 7. 8. 9.

## CHAPTER XXX.

### OF MENORRHAGIA.

2127. An excessive discharge of blood from the vagina is called menorrhagia.

2128. Cullen mentions as remote causes of this disease, high living, drinking freely of spirituous liquors, and frequent intoxication; violent strainings of the whole body; violent shocks of the whole body from falls, or blows on the belly; violent exercise, particularly in dancing; violent passions of the mind, excess in venery, cold applied to the feet, living much in warm chambers, and drinking much of warm enervating liquors, as tea, or coffee. To these may be added late hours, loss of sleep, and anxiety of mind.

2129. All these have been shewn to be causes of weakened action of the heart; and consequently of accumulation of blood in the venous cavity; and the presence of this state of the system is indicated by weak pulse, and cool surface, and often by a regular cold stage, which is followed by a feverish state (1219).

2130. This discharge has been shewn to be an effect of this accumulation (1402). The symptoms which precede and accompany the discharge, are also effects of the same. They are as follows, viz. headach, giddiness, difficulty of breathing, pain in the back and loins, sometimes with frequent pulse.

2131. Cullen also mentions, as consequences of the discharge, pale face, weak pulse, unusual debility felt in exercise, breathing hurried by moderate exercise, pain in the back from any continuance in an erect posture, the extremities becoming frequently cold, œdematous swelling of the feet, anorexia and other symptoms of dyspepsia, palpitation of the heart, and frequent fainting, and liability to strong emotions from slight causes, especially when suddenly presented.<sup>1</sup>

2132. These unquestionably will be increased if the discharge be very large and continued; but it is certain that they precede the discharge. In all the cases stated in this chapter except one, the patients had been for a considerable time, some for months, others for years, in bad health, with more or less of the following symptoms; debility, excessive fatigue from walking a short distance on a level pavement; vertigo, headach, palpitation, weak pulse, pale skin, frequent chilliness, pain in the back, colic, cold feet, nephritic affections, want of appetite; at length appeared a great discharge of blood from the uterine vessels.

2133. These we have heretofore shown to be effects of accumulation of blood in the venous cavity. They are evidently effects, not of fulness of the uterine vessels alone, but of the whole venous cavity; of the veins of the head, the thorax, and the abdomen; such as appear in those parts in men. There cannot, therefore, be any doubt but that these discharges from the uterine vessels are effects of fulness of the whole venous cavity.

2134. Nothing can more plainly show the depend-

<sup>1</sup> Cullen's First Lines, &c. DCCCCLXXI to DCCCCLXXIII.



ance of menorrhagia on fulness of the veins, not on that of the arteries, than the case quoted already from Morgagni (2009). It shows also that the fulness was not confined to the uterine veins, but extended to the whole venous cavity.

### *Treatment of Menorrhagia.*

2135. In addition to the proof derived from the foregoing considerations, an argument strong enough in itself to convince the mind, is drawn from the effects of evacuations from the venous cavity by the liver. From the foregoing considerations, perfectly convinced of the truth that menorrhagia is the effect of accumulation of blood in the venous cavity, I was led directly to the inference that those medicines which evacuate from that cavity would cure this affection. This was immediately tried, and the result was a speedy and perfect cure; insomuch that for some years I have been treating this disease with cathartics alone with complete success. As this is a very important matter, a number of cases are stated.

2136. The first time this practice was employed was in 1822, in the case of a lady perhaps twenty-five years of age, naturally of a full habit, accustomed to living well and easy. She had been in bad health for some years, had had a violent bilious fever in the preceding autumn, was at the time mentioned thin and sallow, extremely weak, and scarcely able to walk steadily, and for a week or two had had a very great and continued menstrual discharge.

2137. I gave her sixteen pills of scammony and rhubarb, each containing five grains, of which she

took two immediately. They operated severely all the evening and all night ; the discharges were dark. She was not pleased at being disturbed in the night, but admitted she felt better, and that the discharge was diminished. She was encouraged to try another dose ; and then another ; and before she had taken the whole, the discharge had entirely ceased. Moreover, all the symptoms which preceded it disappeared, and she became remarkably healthy, and continues so at this time.

2138. The next patient in this disease treated in this manner, was a woman a little above fifty years of age, who had had this discharge to great excess for many years ; she said for seven, her daughter said for a longer time.

Her menses were about departing when she had a very violent fever, and they returned in great quantity in the course of a long illness, and had continued ever since ; not having been entirely absent for one day, as she repeatedly declared in presence of several of the family, who confirmed the statement.

She complained also of ringing noises and continual pain in her head ; of soreness in the pit of the stomach, and middle and lower part of the belly : her pulse was weak and intermitting occasionally ; she had frequent cramps in different parts ; her stomach craved chalk ; she had no appetite, and was somewhat constive. The passages were dark even when she took salts (1567).

2139. This woman took twenty grains of jalap and ten of calomel, which operated the whole day. The same quantity was given seven times in eight days.

The whole operated very freely. She told me afterwards, what I did not at the time understand, that the operation of no dose was over when the subsequent one was given; so that there was a continued operation for more than a week. The discharges were green, dark, or black.

The menstrual discharge, which had sometimes been as great as in the case of a lying-in woman, became rapidly less, and in a few days there were only a few drops occasionally. She was directed to take after this, night and morning, two of the following pills: twenty grains of aloes, and five of ipecacuana, made into six pills. They operated very freely. On one day there was a little bloody serum discharged, which ceased when the medicine began to operate; and in less than three weeks she was perfectly free from any sign of discharge.

2140. About a month after the cessation, in very cold weather, she had a smart discharge for part of a day. She continued to take cathartic pills, sometimes of one kind, and at others of another (1579, &c.), with a constant improvement of her appetite and health in every respect, and an increase of flesh, until she became quite a hearty woman.

Two years afterwards, on inquiring I found that she had had a few periodical returns of the menstrual discharge, which were pretty free; but for a long time there had been none whatever: she had also had something of the leucorrhœa (1391).

2141. The third person who was thus treated, was a single lady, of twenty or twenty-five years of age.

She was thin and pale, her complexion sallow; on

inquiring into her general health, I found she had been troubled with headach, palpitation, weak back, and bad appetite. In the preceding fall she had had excessive menstruation, and shortly after a very severe fever. The menses were not very regular, but very free when they occurred.

July 1st. I gave her twenty-four pills of scammony, aloes, and rhubarb (1589).

July 20th. She had been greatly benefited in every respect. The symptom which in her view constituted the disease, and on which her attention was fixed, viz. the menorrhagia, had disappeared in a short time, and she began to ride about. On riding she perceived a little discharge, and did so on this day, having rode eight miles on horseback. She had not taken the pills since the discharge disappeared. The other symptoms were all much better, and her general appearance was evidently much improved.

July 26th. She called to see me, and was not quite so well. She had been in town since the last date, visiting, keeping late hours, &c., which is very injurious to invalids. She had not, however, any return of the discharge, except a very slight appearance, which she would not have mentioned had I not made particular inquiry. She asked for a few more pills.

2142. The next case was that of a woman thirty-six years of age, and the mother of a number of children. She was accustomed to labour about her house, was thin and sallow, had an indifferent appetite, had complained for a considerable time past, of headach, of a numb feeling in her head, and a buzzing noise in it, of giddiness, of soreness on pressing the epigas-



trium, of pain along the ribs, and in the back and hips, and of cramp in the fingers and toes. At the time of her first application she had no menorrhagia, but complained of the abovementioned symptoms alone.

She received twenty-four pills of scammony, aloes, rhubarb, and calomel; and by taking a few every day, so as to operate about three times a day, she was entirely relieved of the four last named symptoms, and all the rest were mitigated.

2143. Four months afterwards, in July 1823, when a greater epidemic than had occurred in this country for nineteen years, was fast approaching; and when patients in various chronic affections were the first to suffer, she applied again. In consequence of having ceased taking medicine when several of the most important symptoms had been only mitigated, she had relapsed into the state above described (2142), and in addition to the symptoms there mentioned, menorrhagia had appeared. She had been suffering it for near three months, and it had become exceedingly profuse.

2144. July 11th. I gave her twenty-four pills, made of two scruples of each of the following medicines, viz. rhubarb, aloes, calomel, and ipecacuana; of which she was to take two for a dose.

July 17th. The pills operated four or five times a day, for the first two days; then gradually less; and the last two days they operated but once. The first discharges were dark; the last was yellow.

The headach was much better; the thick and numb feeling of the head, the buzzing, and the giddiness, had disappeared; appetite indifferent, but craved meat; no complaint of pain in the back. By the se-



cond day the discharge of blood was quite weakened. On the 14th and 15th it became less and less ; on the 16th she was entirely free from it.

Some little return to-day, the 17th ; note, *there was but one passage in the last two days.*

Gave her twenty-four pills made of half a drachm of each of the following medicines, viz. jalap, aloes, rhubarb, and calomel.

July 25th. Not quite so well ; had had a return of the menorrhagia ; but is notwithstanding much mended in general health. I told her husband that I expected she had been worried over the fire on account of harvesting, and had been up late. He said it was just so ; that she had moreover rode to town twice ; and when she was taken she had been all day at the wash-tub ; *and the medicine had not operated.*

Gave her twenty-four pills of rhubarb and aloes.

July 29th. Her husband came to tell me that she was worse, the menorrhagia was very bad indeed ; and that she looked very badly, and “was out of all heart.”

She had still been over the fire preparing food for the harvesting people. *The medicine had not operated well, only about once a day ;* the passages brown.

I made him recollect that the first medicine which had operated well, had entirely stopped the discharge ; and that since they had ceased operating, she had become worse. I told him I had tried long enough the common mode of treating this disease, and knew it often failed ; that this never yet had, and that I should persevere in it ; that he might, if he chose, try others, but that I did not believe that the common mode of treating the case by opiates, would succeed with her.

He now told me for the first time, that after his first application to me, when the menorrhagia came on, he had applied to another physician, who had been endeavouring for a considerable time in vain to remove the disease ; but that she had become worse under the treatment employed, and that he had for that reason returned. On inquiry, I found from the size, colour, and taste of the pill, and from the constipation produced, that she had been taking opiates, among other remedies. I then gave him twenty-four pills of jalap, aloes, rhubarb, and calomel ; of which she was to take four every two hours until they operated well.

August 2d. The medicine had operated better than the other, but not well. She was better, but still occasionally discharged a good deal of blood.

Again I pointed out the facts, that when the medicine operated well, she was well ; when it operated almost none, she was much worse ; and now when it had operated better than it had latterly done, she was better. He assented to the whole as perfectly true, and took sixteen pills of scammony, aloes, and rhubarb, with directions to give four every two hours until they should act *well* on the bowels.

Aug. 4th. He informed me that his wife was much better, and that the medicine had operated *very* well. He said "she took four pills that night, (August 2d, having taken other pills the same day,) and in two or three hours two more. They operated *very* well. Next morning she was better. Took four more. They operated well. At night she was a great deal better. This morning she took four more, and they operated well, and she has not had a sign all day." Gave him twenty-four pills of the same kind.

Aug. 10th. She is much better; scarce the least appearance since the last application (August 4th), though she had been at her housework again. Gave him twenty-four more pills of the same kind.

Aug. 22d. Called again, and stated that his "wife was getting fat and hearty; so much so that her troubles are of another kind, lest she should be going to multiply: she has not been as well these ten years. Got very wet some days ago, and is costive."

Gave him thirty-two more pills of the same kind, with directions that she should take a dose occasionally.

2145. The next case was that of a married woman of twenty or twenty-five years of age. She had a variety of complaints, such as have been stated above (2130, &c.), and latterly excessive menorrhagia.

May 30th. Sent her four cathartic pills by her husband, who called to see me and state the case. She sent word back in an hour or two, that I certainly did not understand her husband, or he had not given me a correct account of her case; or I would not have sent her such medicine, and that she could not take it, as it would certainly kill her. I went to see her, and persuaded her to take the pills.

May 31st. The medicine had operated well, and she was so much better as to be willing to continue the medicine. Gave her twelve more pills, which put an end to the discharge.

2146. A lady of a remarkably thin and delicate form, dark complexion, hair, and eyes, who had been long in ill health, complaining of a variety of the symptoms already mentioned, was at length seized with

most violent menorrhagia. It had continued excessive for fifteen days when I was called, on the last two days particularly.

May 20th. She had been accustomed to have a sufficient operation from two pills. As the case was urgent, and I had always found that a free operation was most immediately beneficial, I gave her five pills of rhubarb, aloes, and calomel.

May 21st. They had operated pretty well, and she had less discharge. Gave her five more pills.

May 22d. The pills had operated again pretty well, and the discharge was still less, but yet considerable. Gave her four pills of jalap, aloes, rhubarb, and calomel, which, on account of the addition of jalap, were expected to operate better.

May 23d. They operated, however, only once well, and twice indifferently. The discharge stationary. Gave her six pills of the same kind.

May 24th. The operation still indifferent; only one good passage. The discharge was quite considerable. Her sister-in-law, a very intelligent lady, had visited her, and had told her that she had certainly not informed me of the true state of the case, or I would not use such medicines, but would give her astringents; others were very active in the business. The case had now continued twenty days, fifteen before I was called, and five since. I had but lately been consulted by this family, and had had no opportunity of doing much to acquire their confidence.

Under these circumstances I observed that astringents were the medicines which would be prescribed by every physician in town, that I had long used them



myself, but that they were known often to fail, that I had given them up for my present practice for several years, that this course had been in every instance successful, and that I would answer for the termination being favourable if she thought proper to continue. She said she put herself in my hands. I brought to her recollection that the first two doses which had acted pretty well, had manifestly lessened the discharge, that the next two had operated only once well, and twice very indifferently, and that the discharge had during that time been stationary ; and concluded by saying, I therefore shall now give a dose which will operate *well* ; and accordingly gave her four pills containing fifteen grains of calomel, ten of scammony, and five of rhubarb (1591).

May 25th. The pills had operated all day very freely ; the passages were dark. The discharge had almost ceased ; but this morning there was some return. The operation, however, had commenced again, and continued all this day also to be pretty free. The discharge of blood was inconsiderable after the morning, and had nearly ceased.

The medicine continuing to operate so well, she took nothing this morning.

May 26th. The operation being over, the passages still green or dark, and there being still a slight discharge of blood, she took thirty grains of rhubarb, fifteen of calcined magnesia, and ten of calomel, at once, in a little sugar and water.

May 27th. The medicine had operated well : the discharges from the bowels being still dark, she took



scammony and rhubarb, of each twelve grains, made into five pills.

May 28th. The medicine still operating, she took nothing.

May 29th. She took of scammony six grains, of calomel and rhubarb each four grains, made into three pills.

May 30th. The pills operated very well; the passages from the bowels were still somewhat dark.

She took three more pills of the same kind. The discharge of blood had entirely ceased for some days.

2147. The last case I shall state was that of a woman about thirty years of age, short and of a strong make, who had had several children.

She had consulted me several times before, in the course of the last four years, having been in an indifferent state of health. She had complained latterly of palpitation, giddiness, and general weakness. She took some pills of rhubarb, aloes, and calomel, and was relieved; as soon however as she felt better, she ceased applying. She had now a profuse menorrhagia, which had continued for some days.

June 26th. Two pills ordinarily operated on her bowels: as the case was urgent, I gave her four. In six hours, there having been no operation, and no diminution of the discharge, I gave her jalap and calomel, of each ten grains.

June 27th. The medicine had operated once copiously, and twice slightly. The discharge of blood had sensibly diminished afterwards, and she slept well; but about daylight it returned profusely, insomuch that she was thought to be dying. I found her at nine

o'clock this morning discharging freely, the pulse weak, the skin, however, warm enough, but the breathing hurried. She took immediately twenty grains of jalap, and ten of calomel.

Afternoon. The medicine had operated five or six times largely; the passages were green; the pulse full; the discharge almost at an end. She took fifteen grains of jalap, and seven of calomel.

June 28th. The medicine operated well; the discharge of blood still very trifling. She took a cathartic of the same kind.

Afternoon. The medicine had not operated; the dose had been repeated at three o'clock. There was some increase of the discharge; but when the medicine began to operate, it ceased.

June 29th. Her mouth being somewhat affected, she took of jalap twenty-four grains, which operated but little.

June 30th. She took a dose of the same kind, which operated but little.

July 1st. No discharge. Took nothing.

July 2d. Some return of the discharge yesterday after the visit, and this morning. Her mouth being sore, took calcined magnesia alone, which operated very well.

July 3d. The discharge had entirely ceased.

2148. In the following case, the hemorrhage occurred three weeks after the birth of a child. This lady had been visited by a number of friends from a distance, and she imprudently exerted herself very much in making ready to entertain them. She was so unwell in consequence of the fatigue, that she requested me to visit her.

September 23d. I found her pale, sick, fainty, giddy, with pain in the head, and considerable uterine hemorrhage, of which she had had some appearance for the last eight days.

She had taken on the preceding day, two tea-spoonfuls of magnesia, which had operated three times. There had been no operation to-day, and this evening the hemorrhage had increased. She took immediately, four pills of scammony rhubarb and calomel.

Sept. 24th. Morning. The medicine had operated twice; the first time at two o'clock in the night: the first passage was black; the second of a lighter colour: the hemorrhage had ceased. She looked much better; talked with life; and moved in bed with strength. She took four more pills.

Night. The medicine had operated twice; the passages were dark coloured. She felt still better.

Sept. 25th. Morning. She took four of the same pills.

Afternoon. There had been no operation; the medicine had made her very sick; about two or three o'clock there was considerable hemorrhage, which alarmed her very much; from the alarm and the hemorrhage she fainted, and was slightly convulsed, as often occurs in fainting; after this the hemorrhage moderated. She took scammony and calomel, of each ten grains, in four pills.

Night. There had been several small black passages.

Sept. 26th. Morning. She had taken in the night several tea-spoonfuls of calcined magnesia. A moderate operation was kept up; the passages were black:

she felt stronger; there was but little hemorrhage. She took of scammony fifteen grains, of calomel ten.

Afternoon, two o'clock. Still a moderate operation; the passages black; she had vomited once; the hemorrhage was trifling. She took fifteen grains of scammony.

Five o'clock. The operation more free; passages black; she had vomited considerably, throwing up green bile; the hemorrhage had ceased.

Night. She had complained all day of a bad pain in her head, and back, and to-night of a suppression of urine. She took fifteen grains of scammony.

Sept. 27th. Morning. The medicine had operated well; there had been three or four green passages; no hemorrhage: had pain in the head, and sick stomach. She took ten grains of calomel.

She still complained of the suppression of urine: she had called it a strangury, which had occasioned its being overlooked, or rather left to be carried off by the medicine she was taking for the hemorrhage (1866, &c.). She now took some spirit of nitrous ether, thinking it would relieve her, and some other inconsiderable remedies, without benefit. She tried a cold application to the pudendum, with no better effect: at length, after having ceased from making efforts, she had a large discharge, as it were spontaneously.

Sept. 28th. Morning. A moderate operation still continued; passages green; less nausea; no hemorrhage. She took fifteen grains of scammony, to which was added a small powder of jalap and calomel I had in my pocket, five grains of each.

Evening. The medicine operated well; passages

green ; she had vomited yellow bile ; no hemorrhage ; she was considerably better.

She continued for a considerable time afterwards to take laxative pills ; there was no return of hemorrhage. During a considerable part of this illness, she could not rise even to use a bed-pan ; but used cloths when the medicine operated. She, however, recovered a better state of health, with more flesh and colour than she had had for some years.

2149. These cases are enough to shew the success of the practice. There was no other medicine used in these cases than what has been stated. The practice has not failed in a single instance. On one only there rests a doubt of a perfect cure. The patient had been long suffering under the utmost degree of palpitation, &c. &c., and repeated and excessive floodings. She took four or five boxes of pills, and her daughter, who came for the medicine, finally told me she was almost well ; and having given her another box, I saw no more of her. The result of the case I know nothing more of, as she had moved away when some time after, in riding by, I stopped to inquire the termination of the case.

2150. For carrying off the excess of blood accumulated in the interior veins in these and other cases, nothing is equal to the cathartics mentioned above. For speedy relief however, and to gain time in excessive discharges when the pulse is low, it is highly probable, from the effect of emetics in other hemorrhages (2103), perhaps it would be more proper to say it is certain, that they would be highly useful in these.

Eberle has stated a case in which he gave an eme-



tic to "a delicate female, who, with menorrhagia, suffered under symptoms indicating the use of a gentle emetic. I ordered her (he proceeds) eighteen grains of ipecac. which brought on several copious bilious discharges from the stomach; and had the effect, besides, of giving a very decided check to the hemorrhage."<sup>1</sup>

Burns, in his *Principles of Midwifery*, says, "M. Gendron, in the seventh volume of the *Recueil Periodique*, relates an excellent instance of their effects on a woman, who had obstinate and alarming hemorrhage, which resisted even the use of plugs, and caused frequent syncope. The discharge stopped after giving ipecacuanha."<sup>2</sup>

It is not at all improbable that medicines given in menorrhagia with very different views, produce their good effect by causing the patient to vomit. I have a memorandum made June 12th, 1806, in the following words: "In menorrhagia one grain and a half of *saccharum saturni*, and half a grain of opium, puked (the patient) and cured by two doses."

2151. This is precisely the kind of operation which would be best calculated to send the blood to all parts of the system; a free vomiting speedily brought on, not continued nausea with little vomiting. Ipecacuanha was the medicine used in the cases of hemorrhage before stated. Antimonial wine, however, well diluted, so as to make sure of having it all thrown up in once or twice vomiting, would answer very well (2014). I have, however, never tried emetics, having

<sup>1</sup> Eberle's *Materia Medica*, Vol. 1. p. 87.

<sup>2</sup> Chapman's *Burns*, p. 125.

never yet seen a case in which an active cathartic, of the kind mentioned above, did not *speedily* relieve; the first free operation always having decidedly checked the hemorrhage.

### *Excessive Menstruation.*

2152. A distinction has been made between menorrhagia and excessive menstruation. It is alleged that the menstrual fluid is not blood, but a secretion.

2153. Secreted fluids are separated from the general mass of blood for the use of the body, or of its offspring, or for the relief of the system from a constituent part of the general mass, the retention of which would be injurious. Those which are for the use of the body, or its offspring, are provided when they are wanted; those which are always wanted are always going on; those that are wanted occasionally, are occasionally provided.

2154. The menstrual blood is not secreted for any use; when it is *wanted* (and surely it is wanted when it is retained in pregnancy) it is not secreted; and therefore what is wanted is an unsecreted fluid, or the blood itself; and when it is not wanted it is thrown off: it is blood, therefore, which is thrown off, and not a fluid secreted for the purposes of the body or its offspring.

2155. Neither is it a constituent part of the general mass separated because of injurious qualities, and not to be retained without danger. The secretion of those fluids which are thrown off on this account, is always going on; because, if they are injurious at all, they are always injurious. But this is retained generally

a month, sometimes much longer, without any serious inconvenience.

2156. It may be alleged that the retention does produce evil effects : true, but no other than the retention of any customary discharge of blood : the very symptoms produced by retention of the menses, are produced likewise by retention of the hemorrhoidal blood, or of any habitual hemorrhage : and the loss of blood from any other part of the venous cavity, removes the symptoms produced by the retention of the menstrual blood (2068, note).

2157. The menstrual blood, moreover, is designedly retained in pregnancy, which is full proof that it is not an injurious constituent part of the blood.

2158. The menstrual fluid therefore is not separated for the use of the body or its offspring ; neither does it consist of injurious constituents of the blood.

It is not, therefore, a secreted fluid.

2159. It is however alleged, that it must either be blood, or a fluid separated from the blood, viz. a secretion ; that it is not blood, because it does not resemble the blood drawn from an orifice in a vessel ; and that therefore it must be a secreted fluid.

2160. The difference between the menstrual fluid and blood is shown ; it is said, by the difference of colour, by the menstrual fluid not separating into the different parts of which blood is composed, and by its not coagulating.

2161. With regard to the colour, the menstrual blood is of a brighter red than venous blood, and not so bright as arterial ; it differs therefore from both.

2162. The blood in this case proceeds from the mi-

nute branches of the arteries, which in common do not carry red blood (1398. 1402): just issuing from the arteries near the points where they are terminating in the veins, the blood is of course darker than in any other part of the arteries, and brighter than it is after it has continued longer in the veins. Blood from an orifice in a vein of the hand, is of a brighter red than that from an orifice at the elbow. Delay of the blood in the veins of the arm by a ligature but for a moment or two, produces a deepening of the colour of the blood visible through the skin. The menstrual blood is moreover darker when it is not discharged at the usual period: if long retained it is often black.

2163. It is evident, therefore, that the colour of the menstrual blood affords no ground for this doctrine; but rather shows the reverse, inasmuch as the difference observed is just what it ought to be, when we consider the vessels from which it flows.

2164. The other two points of difference are but one, inasmuch as it is the act of coagulation that separates the parts of the blood.

2165. In this respect, however, the menstrual blood differs not from that often discharged from the bowels. I have seen it often, and have had it kept for hours, sometimes all night, until the forenoon visit, and have found it still fluid and black. The same want of power to coagulate is sometimes observed in the blood drawn from the arm. The menstrual blood therefore is not more a secretion on this account, than the blood generally discharged in hemorrhages from the bowels, or the whole mass of blood in certain morbid states of the system.

2166. The discharge often commences with blood which does not coagulate, or with common menstrual blood; and in the course of a few days or hours, sometimes with, and sometimes without any observable cause, it is observed to coagulate. In this case *menorrhagia* is said, by those who favour the distinction, to have supervened during, or at the time of a menstrual period. But the fluid discharged, whether it coagulate or not, is unquestionably from the same source, passes from the same vessels, and is the same fluid with an unessential variation of colour, &c.

2167. The distinction is of no practical importance. Excessive menstruation is treated in the same way precisely with *menorrhagia*, by those who make the distinction.<sup>1</sup> In the cases above cited (2136 to 2148), no distinction was made, or indeed once thought of.

2168. To conclude, this discharge is not separated from the mass of blood for the use of the body, nor for that of its offspring; it is not separated because of any noxious qualities requiring its separation; it differs in nothing material from the general mass of blood, in nothing from the blood discharged in other hemorrhages (2063), nor even from that sometimes drawn from the arm; sometimes in the same case the blood discharged is at first such as is distinguished as menstrual blood, and afterwards such as is considered not menstrual, by those who make a distinction between excessive menstruation and *menorrhagia*; the distinction leads to no difference of practice in those who make it, or those who do not; and therefore it

<sup>1</sup> System of Midwifery by W. P. Dewees, M. D. Compare paragraphs 364 and 368, with paragraphs 999 and 1021.



does not exist; and even those who contend for its existence must allow that it is useless to make any other inquiry of the patient, than the simple one, Is there an excessive discharge of blood from the vagina? (2127).

*Of Menorrhagia during pregnancy.*

2169. When menorrhagia takes place during pregnancy, the child is generally lost without proper assistance. I have never met with an instance in which hemorrhage did not precede the expulsion of the fœtus. The hemorrhage is generally preceded by pain in the back, sometimes for many weeks; it is also generally accompanied by it, as in menstruation and in menorrhagia in women not pregnant: in many cases the pain is occasionally aggravated, so as to have paroxysms; and is not always confined to the back, but extends to the bowels, sometimes with nausea and griping: pain in the head often precedes the hemorrhage for weeks: palpitation, dark complexion, and occasionally a dark passage, also occur.

2170. All these symptoms are effects of accumulation of blood in the venous cavity, in women not pregnant. In those who are, they must be so likewise; and the fact that there has been, for some months preceding, a suppression of the monthly evacuation blood, confirms it (1252).

2171. Another striking symptom which accompanies this hemorrhage, the effort which produces the expulsion of the fœtus, when it has become impossible for it to come to perfection on account of the hemorrhage, is evidently the result of that wise constitu-

tion of the body, whereby "an injurious impression gives rise to an action or to a series of actions, the tendency of which is to remedy the evil" (50); so that "an evil impression made on it is the first link of a chain of causes, of which the last alleviates or removes the evil" (51). The evil impression made on the system by the remote causes of menorrhagia, viz. accumulation of blood in the venous cavity (2170), is therefore the first link of a chain of causes of which the uterine effort is the last; and consequently the uterine effort, as well as the hemorrhage, &c. is an effect of this accumulation.

2172. All the symptoms accompanying abortion, therefore, and abortion itself, are effects of accumulation of blood in the venous cavity.

2173. This conclusion is confirmed by the fact that the remote causes of abortion are causes of weakened action of the heart, and consequently of accumulation of blood in the venous cavity (1218).

2174. The remote causes are blows, violent passions and emotions of the mind, excessive grief from some sudden misfortune, an indolent life, sitting up late at night, rich and full diet, fermented liquors, excessive venery, excessive bleeding, &c. These are all causes of weakened action of the heart, and therefore of accumulation of blood in the venous cavity.

2175. Blows have been thought to act immediately on the uterus, and cause it to contract and expel the foetus. This is not always the case; because they do not produce this effect when the direct influence of the blow is greatest, but some hours, or even a day or two after; because a severe blow on any part will pro-

duce the effect ; a fall in which the body is not struck, but the person saves herself by efforts with her hands and feet, sometimes produces abortion, by the general jar given to the system ; and lastly, because even in these cases hemorrhage precedes the uterine effort, and sometimes exists without the latter coming on at all.

2176. Miasmata are another remote cause of abortion. This is evident from the great tendency to abortion in epidemic seasons, even in those not labouring under an attack of the fever. In the severe epidemic of 1826, this tendency was particularly observed in Winchester.

2177. The same conclusion (2172) is confirmed also by the frequent occurrence of abortion in the last stage of mortal fevers, when the febrile action has ceased, and every symptom shows excessive accumulation of blood in the venous cavity. Abortion frequently occurs in such cases in the last moments of life, while the pulse is gradually ceasing, the blood accumulating within, and the effects of excessive fulness of the venous cavity, stupor, &c., increasing every moment.

2178. This conclusion is also confirmed by the fact mentioned by Denman ; viz. " Women seldom abort while they have the vomiting which usually attends early pregnancy."<sup>1</sup> Doctor Francis, professor of Obstetrics, &c., in the University of the state of New-York, has made the same observation.<sup>2</sup>

It is obvious that the effect of daily vomiting is to prevent accumulation of blood in the venous cavity (1551. 1555).

<sup>1</sup> Denman's Aphorisms, &c., Abortions, section III. 5.

<sup>2</sup> Francis's Denman, p. 235, note.

2179. It is confirmed also by the fact that very weakly women, or very plethoric women, are most likely to suffer abortion.<sup>1</sup>

2180. Very weakly women are those who “are susceptible of violent impressions from slight external causes;”<sup>1</sup> and who are therefore frequently complaining of disordered stomach and head, of palpitation, &c. &c.

2181. Very plethoric women have a superabundance of blood, which must pass off by some outlet, or produce convulsions or apoplexy. Women are so constituted as, in health, to make more blood than enough for themselves alone, and the uterine vessels are the outlet provided for the periodical escape of the overplus. When, therefore, in pregnancy, by the indulgence of an excessive appetite there is an excess of blood formed, it is obvious that this natural structure invites the passage of the extra blood, whence hemorrhage, &c. &c.

2182. Finally, it is confirmed by the presence, at the commencement of abortion, of the marks of accumulation of blood in the venous cavity, viz. coldness of the extremities, and shivering (1219).

2183. When a woman suffers abortion without being able to refer it to any accidental cause, as a blow, a sudden alarm, a great misfortune suddenly occurring; and when, therefore, it is produced by the operation of causes to which she is habitually exposed, viz. excessive plethora from inordinate indulgence in eating particularly animal food; an indolent life; sitting up late at night; using fermented liquors; constitutional lia-

<sup>1</sup> Denman's Aphorisms, &c., Abortion, section II.

bility to excessive emotions of the mind, in consequence of which many common occurrences produce great effect ; settled grief from continued misfortune ; excessive fatigue and want of rest, arising from the necessity of continued efforts to support a family, &c. ; she is habitually liable to accumulation of blood in the venous cavity, even when not pregnant, and more particularly so when the additional cause suppression of the menstrual discharge is added (1252) ; and suffering under the regularly continued operation of the remote causes to which she may be particularly exposed, the effect, accumulation of blood in the venous cavity, corresponds, and periodically arrives at that height which is sufficient to produce the effect, menorrhagia, in pregnancy as well as in women not pregnant. Hence the recurrence of abortion in women in the abovementioned circumstances, nearly at the same period of successive pregnancies.

2184. A lady of very full habit, of extraordinary appetite for animal food at all times, and particularly during pregnancy, of very indolent habits, and therefore very plethoric, was troubled, soon after becoming pregnant, with severe headach, with pain in the back, &c. These symptoms continually increased, until in a few months after impregnation, she regularly miscarried.

2185. That uterine hemorrhage in pregnancy, and the effort whereby the fœtus is expelled, are neither the cause of the other, but joint effects of one cause, is evident from the fact that sometimes one and sometimes the other precedes, and either may occur without the other (77).



The following are instances of these occurrences.

2186. A lady in the ninth month of pregnancy had strong pain regularly returning, and called a midwife. The pains continued three days, when the family requested me to visit her. The head of the child was considerably low down, but the os uteri was not dilated in the least; there had not been a sign of hemorrhage. By active measures to be presently stated, the pain and straining were carried off, and she went to her full time.

2187. Hemorrhage without straining is not an uncommon occurrence; and by proper measures this can perhaps always be carried off, without the appearance of any uterine effort.

2188. Resting confidently on the correctness of this train of reasoning, and on the conclusion that menorrhagia in pregnant women is produced by the same cause that produces it in women not pregnant (2172); and confirmed by the successful issue of the practice of evacuating from the venous cavity through the liver in the latter, I gave the same cathartics in the first case of the former that occurred, and with the same complete success.

2189. The first case of this kind so treated, occurred in a lady of dark complexion, and black eyes; her complexion was sallow at the time; she was thin and delicate, frequently complaining of a fainty feeling about the præcordia, pain in the back, &c.

The discharge appeared in the end of the fourth month of her fourth pregnancy. I found her cool, with a moderate pulse, and not much alarmed. She immediately took four pills of scammony, rhubarb, and

calomel ; and in the course of the two following days, twelve more. They all operated well : from the first operation the discharge ceased, and returned no more. On the fourth day I gave her twelve pills, to take occasionally, and left her. Five months afterwards I attended her in labour, and she had a very fine child, which is now living.

2190. The second was a very remarkable case in several respects. The woman was about thirty years of age, uncommonly gross. She was pregnant the seventh time. She had menstruated for the first four months in every pregnancy ; she particularly said, on being closely questioned, that there were no clots of blood passed. In every instance she had been affected, about the beginning of the ninth month, with pain in the lower part of the abdomen, in the back, sometimes in the head, with loss of appetite, sick stomach, and costiveness : after three or four days, or a week, in addition to these symptoms she had a discharge of blood from the vagina, which she called by the common name, flooding. This continued with more or less violence for two, three, or four weeks, until she was delivered. The children were born alive in every instance but one ; but had no appetite, or very little, soon fell away, had a discharge of black blood from the mouth, and died within the month. This was the case with six children.

2191. In her seventh pregnancy she menstruated as long as usual in the commencement ; and in the beginning of the ninth month, was attacked as usual. Being requested to visit her, I found her with pain in the abdomen, head, and back, and with a considera-

ble hemorrhage from the vagina. The cathartic pills were given her, and the effect of the operation in checking the discharge of blood, was evident. She was, however, very ungovernable, and would not take the medicine regularly; nor would she take any thing but that which suited her own caprice. In this she was countenanced also by her sister. I should have left her, but anxious to see the effect, persevered. She finally lost the child in the same way with the others; but the medicine had so obvious an influence over the hemorrhage, arresting it whenever there was a free operation, as to convince her husband, and make him very angry because she would not persevere, as he had no child, and wanted one.

2192. Twenty-seven months afterwards, being in the commencement of the ninth month of her eighth pregnancy, after having menstruated as usual for the first four months, the usual symptoms came on; viz. pain in the abdomen, &c., loss of appetite, nausea, together with vomiting and purging. At this time, the weather being very hot, the cholera morbus was common among children and adults. She immediately applied for assistance, in hopes of preventing the usual hemorrhage, of the probability of which I had given her and her husband the strongest assurances.

She took a cathartic immediately, which operated very well: on the second day she took another, which likewise operated very well: on the third day her bowels were so loose as to render it unnecessary to give her any. The loose state continued; and she had three or four good passages every day for the whole month: she had no hemorrhage whatever, and at the

full time had a fat, hearty child, which is still living and in good health.

2193. The next case was somewhat similar to the foregoing. The woman was about thirty years of age. She had lost a number of children towards the end of her pregnancy, and had not one living. In her last pregnancy she applied to me to prevent this. She was then beginning to flood smartly. She took without delay, four cathartic pills; on the next day five; on the third day none; on the three following days sixteen. The discharge ceased almost entirely at once; but the passages being dark and green, the medicine was continued, and on the seventh day I left her with a dozen pills, to take a few occasionally.

2194. Near three weeks after that time, I was called to see her again. She was sitting in bed, flooding freely, and had severe pains with intervals of ease. She considered herself in labour, and called on me on that account. Every appearance indicated that this was the case. I however determined to try the effect of a cathartic, and gave her immediately four pills of jalap, aloes, and calomel; which not operating satisfactorily, she took twelve grains of calomel in a few hours after.

August 3d. The medicine had operated well, the passages were green, the pains had ceased, and the discharge of blood was inconsiderable. She took ten grains of jalap, and ten of calomel.

Aug. 4th. The medicine had operated well; the discharge of blood had ceased entirely: the passages were green; she took the same powder.

Aug. 5th. The medicine operated well; there was

no discharge of blood; the passages were green; she took the same powder.

Aug. 6th. When I called, she had walked out. The same thing occurred the two following days. She continued well, and had sometime after a child, which is now two years old.

2195. A young lady, the daughter of the lady who made the observation respecting astringents, above stated (2146), immediately after the termination of that case, having, by their reckoning, passed the time of delivery, was suddenly attacked by a considerable discharge of blood from the vagina, accompanied by pain. Being called in a hurry, I found the family under an impression that labour had commenced. The hemorrhage had ceased, but there was every reason to believe it would speedily return; and as there was by no means any certainty that the regular period of labour had arrived, I determined to regard the hemorrhage alone. She therefore took immediately four pills of jalap, aloes, and calomel; on the second day four more of rhubarb, aloes, and calomel; and on the third, four of rhubarb and aloes. The hemorrhage did not return; she was entirely relieved from all pain, &c.; and on inquiring into the circumstances of her pregnancy, I made the calculation that she should expect the labour between the middle and end of the ensuing month. Accordingly, twenty-five days from the time of the hemorrhage, I was again called, and she had a son after a favourable time.

2196. During the epidemic of 1826, a lady three months advanced in pregnancy, sent me word that she had a discharge of blood from the vagina. She was



requested to take a double dose of the pills of rhubarb, aloes, and calomel, which she generally kept in the house. On visiting her next day, I found the medicine had operated well, and the hemorrhage had totally ceased. She was advised to take a similar dose for three or four days, which she did, and had no return of the hemorrhage. Six months afterwards I attended her in labour, and she had a very fine child; and had unusually good health afterwards.

2197. The lady whose case is stated at 2148, twenty-two months afterwards, in the ninth month of her third pregnancy, complained of a pain in the back, becoming more severe at intervals. She was advised to take a dose of the pills of rhubarb, &c., which she had in the house. She put it off till bedtime. About dark she had a sudden discharge of blood from the vagina; the pain had increased; and there were evidently such pains as occur in labour. She considered it premature; and encouraged by the result of former cases (2194), I gave her immediately half a drachm of rhubarb, and a scruple of calomel. She always required a large dose. For a full hour after, there was no hemorrhage with the pains. The simple fact is mentioned to show that there is nothing in the dose to increase such a hemorrhage. After an hour had elapsed, the hemorrhage appeared again during the pains. These increased fast, the os uteri was well dilated, and quite soft and relaxed; and as she was much alarmed, having lost a sister-in-law a short time before, whose labour commenced with flooding, the ergot was used, and the labour was over in fifteen minutes. The medicine did not operate at all. She took,

every day for a week, the pills of rhubarb, &c., and recovered without fever, or any disagreeable occurrence.

2198. The following case does not strictly come under this head, of menorrhagia during pregnancy; but is nevertheless so intimately connected with the subject, that I shall state it.

2199. A young lady, about the middle of the ninth month of her first or second pregnancy, had severe pain in the back and abdomen, returning at pretty regular intervals. She called a midwife, who considered her in labour. She continued three days in this situation; and at length desired me to visit her. Though the straining had been violent, there was no hemorrhage. The head of the child was forced pretty low down, but the os uteri was still closed.

She took half a drachm of calomel at once; and as soon as a free operation was effected, which was in a short time, she became quite easy. The discharges were green. She continued to take mercurial cathartic pills, &c., for five or six days, until the passages became quite natural. The doses necessary to operate were in this case very large. No hemorrhage occurred; the straining did not return; and on the fifth day from its disappearance, she had a child after an unusually short labour.

2200. These are all the cases that have occurred since this mode of treatment was adopted. They show in the most decided manner, the good effect of cathartics.

2201. In every case in which hemorrhage occurred without uterine efforts, it was carried off by the use of cathartics, and the child was saved (2189. 2193. 2195. 2196).

2202. In the only case in which the hemorrhage was not carried off entirely, the patient did not use the cathartics as directed : nevertheless the good effect of those she did use was so marked, that her husband was convinced that she would have been relieved entirely, if she had persevered ; and she herself showed afterwards that she was convinced she had been following bad advice, by applying on the very first symptom of a similar attack in the next following pregnancy (2190. 2191).

2203. In this last pregnancy the hemorrhage was evidently prevented by the use of cathartics, and the child saved, although she had lost every one of seven preceding children with the same symptoms precisely, as far as they were allowed to proceed (2192).

2204. In one case, in which free hemorrhage was accompanied by such efforts that the woman was considered in premature labour, both were arrested by the use of cathartics, and the child saved, although she had lost every preceding child precisely in this way (2194).

2205. In one case, in which, in the opinion of an experienced midwife and several ladies, premature labour had continued for three days, without hemorrhage however, and without dilatation of the os uteri, the painful efforts were carried off entirely by the use of cathartics, and the child was not born until the full term had expired (2199).

Note. The blistering plaster mentioned in the case at 2090, I have learned on inquiring of the man and his wife since the case was printed, was not used.

## CHAPTER XXXI.

### OF LEUCORRHŒA.

2206. Leucorrhœa is a discharge from the vagina, more or less white or transparent. It may be confounded with several discharges from the same part, all of which are local affections; whereas leucorrhœa is produced by causes which operate not on the part, and therefore is not a local disease. The manner of distinguishing between these local affections and the general disease, shall be attended to.

2207. Leucorrhœa proceeds from the same remote causes which produce menorrhagia (2128). The effect of these being weakened action of the heart, accumulation of blood in the venous cavity follows unavoidably (1218). The marks of this accumulation, weak pulse and pale surface (1219), are present in this disease. The discharge itself is an effect which such accumulation is capable of producing (1370), and it is accompanied by the same effects of that cause which accompany menorrhagia: these having been already stated, need not be repeated (2130 to 2132).

2208. Moreover, leucorrhœa often occurs in those who are subject to menorrhagia. The former precedes the latter, the discharge becoming more and more coloured; and when the discharge of blood declines, the serous discharge appears again; and some-

times continues throughout the interval between the periods of excessive menstruation.<sup>1</sup> The sole difference therefore consists in *the colour of the discharge*; and this varying every hour during the change from one to the other, if such variation constitute difference of disease, the disease varies every hour.

2209. Produced by the same remote causes operating on the system in the same way, accompanied by the same effects of those causes (2207), and alternating with one another (2208), there is no essential difference between them; and accordingly Cullen has arranged leucorrhœa and menorrhagia as species of the same genus. The latter he calls menorrhagia *rubra*; the former menorrhagia *alba*; or *red* and *white* menorrhagia.<sup>2</sup>

2210. Leucorrhœa therefore is also produced by the same proximate cause, accumulation of blood in the venous cavity (2207); and medicines which produce evacuations from that cavity are the proper remedies.

2211. Relying on the validity of this inference (2210), cathartics (1579, &c.) were tried; and the result was such that I have used them alone for a number of years, although the remedy I formerly used was almost always successful.

2212. This was the *uva ursi*. It was given in doses of half a drachm of the powdered leaves, three or four times a day, in milk. It is liable, however, to two objections. One is its extremely disagreeable taste, in consequence of which, patients will seldom continue

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xlvii, art. 8.

<sup>2</sup> Cullen Synop. Nosol. Tom. II. p. 163 to 166.



to take it long enough, without a great deal of trouble. The other is, if they happen to stop too soon, it seldom is as useful when they return to it in consequence of the return of the complaint.

2213. Even when this medicine was my sole reliance in leucorrhœa, it sometimes happened that the patient was not benefited much until a few mercurial cathartics had been used. In one case, a woman of twenty-five took uva ursi with very little effect. Some symptoms not now recollected, led to the use of a few doses of jalap and calomel; after which the uva ursi being resumed, the patient quickly recovered. At the time, the recovery was attributed to the uva ursi; but the cathartic had a better claim to it.

2214. A few cases will suffice to show the effect of cathartics in leucorrhœa.

2215. A woman applied for relief for a discharge from the vagina, which was suspected to be a gonorrhœa. This, however, she utterly denied. The disease was nevertheless treated as gonorrhœa, with astringent injections, for a long time, without the slightest advantage. At length they were laid aside, and in a very short time she was entirely cured by active cathartics.

2216. A woman about thirty-five or forty years of age, being considerably harassed with leucorrhœa, applied for assistance. She received two dozen pills of jalap, aloes, and calomel, with the usual directions, to take enough to operate three or four times a day on the bowels. This single parcel of pills carried off the disease. She applied full three years afterwards, on account of a partial return of the disease. She

stated that it had appeared again in consequence of excessive fatigue with a very sick family ; that it was not however constant, but appeared only once a month, after every menstrual discharge (2208), which was much less free than usual.

2217. This affection, like menorrhagia, frequently occurs in pregnant women. A lady of very full habit, who lived well, in the eighth month of pregnancy had this discharge with several other symptoms.

She had a constant leucorrhœa (menorrhagia *alba*) except during an occasional slight discharge of blood (menorrhagia *rubra*) instead of it (2208. 2209); she also had the piles; her stomach was very much disordered with acidity and flatulence; her head, with vertigo and pain, and sometimes considerable stupor; she also had frequent erysipelatous flushings, and eruptions.

These symptoms had, in a preceding pregnancy, increased continually, until she at length was prematurely delivered of a dead child.

In this instance they were all carried off in a few weeks by the use of the pills of rhubarb, aloes, and calomel; and she had a child which is now living.

2218. Tonics are commonly prescribed in this affection, but often with little effect; and when they have been of service, there is good reason to believe that the good effect has often been produced by their operating on the bowels. Of this the following case is a striking instance.

2219. A lady, about thirty-five years of age, applied to me in 1807, in a very bad state of health. She had had leucorrhœa for ten or twelve years. A

physician of high reputation had made continual efforts to cure her for five or six years, with "very little effect, until he pronounced her incurable" (the words of her written account). She then applied to another who was little less celebrated. She "took his medicine for near the same length of time, and continued to get worse" (her words again).

As far as I can learn, the medicines used were tonics, the sulphate of iron, the sulphuric acid with as much sulphate of iron in it as it would dissolve, &c. I commenced with the same view of the case. She was pale, weak, emaciated, and seemed to require tonics alone. She took, however, the pill abovementioned, of aloes, asafetida, and sulphate of iron (2054) very freely, the object being to push the tonics; and this "medicine made (she wrote) a perfect cure of the complaint."

Some years after, the disease returned, but under what circumstances it is not at present in my power to ascertain.

2220. This disease may be confounded with gonorrhœa, after the violence of the inflammation in the latter has subsided, or sooner if that symptom is concealed by the patient: but I have found those persons whose conduct exposed them to the danger of being affected with gonorrhœa, very willing to acknowledge it. If there should be any doubt on the subject, an opinion may be formed from the patient's having been exposed or not exposed to the remote causes of leucorrhœa (2207); from the discharge being accompanied or not by other effects of those causes (2207); particularly from its appearing in those who are sub-

ject to the kindred affection, menorrhagia (2208); from its alternating with menorrhagia (2217); from its appearing always either immediately before or immediately after menstruation (2216); and from its appearing to be more or less a substitute for the menstrual discharge, the latter being more scanty than common (2216).

2221. I have met with two or three cases of what, from the circumstances, appeared to be a purulent discharge from the vagina: the patients considered the disease leucorrhœa.

The discharge occurred suddenly, in considerable quantity at first, after more or less pain in the neighbourhood of one of the ovaria; the pain, in every case but one, ceased when the discharge took place; the discharge was continual, but moderate after the first; it was described to be white, and of the consistence of pus.

In these cases a few cathartics were given, and the discharge soon ceased, except in one case alluded to above. In that the pain was very severe; and the discharge continued: the patient was repeatedly bled and freely purged, and recovered, but with considerable difficulty.

2222. In either of the cases mentioned (2220. 2221), an error in judging of the nature of the complaint will not lead to injurious practice; inasmuch as in the last named affection, as well as in leucorrhœa, cathartics are the proper remedy; and as in gonorrhœa mercurial cathartics are perhaps the speediest and most effectual means of carrying off the disease.

2223. Leucorrhœa may also be confounded with

some discharges from the vagina proceeding from local affections, perhaps ulcerations. These affections are however rare ; but as the use of laxative medicines will be found beneficial even in these cases, if there should be a difficulty in deciding precisely the nature of the affection, there will be none in prescribing.



## CHAPTER XXXII.

### OF DEFECTIVE MENSTRUATION.

2224. The menses sometimes fail to return at the usual period, or if they appear they are deficient in quantity, and accompanied by pain. The former is called suppression of the menses; the latter, difficult or painful menstruation.

#### *Of Suppression of the Menses.*

2225. The remote causes of suppression of the menstrual discharge are known to be, cold, whether applied by getting wet, by long exposure to cold air, or by sitting in a cold room with the feet on a cold floor; fear, anxiety, falls or blows, &c. To these may be added miasmata. Suppression of the menses is common in our autumnal seasons, even in those who escape the fever. A very great proportion of the females in two towns much exposed to miasmata, and great sufferers in the late epidemics, were affected in this way. One who came in these circumstances to Winchester, and became a patient of mine, gave me this account.

2226. All these are remote causes of weakened action of the heart, which is unavoidably followed by accumulation of blood in the venous cavity (1218). The operation of those causes, and the presence of

this accumulation, are shown by the ordinary marks, weak pulse, pale surface, and cold extremities (1219).

2227. A variety of the effects of such accumulation are also present; as pains in the back, bowels, and head, loss of appetite, stupor, &c. &c. If the discharge be not restored, or if some other be not substituted, other effects of accumulation of blood in the venous cavity appear; as acidity of the contents of the stomach, sometimes inordinate appetite, depraved appetite (1839), nausea, eructations, sallow complexion, black or green discharges from the bowels, costiveness and sometimes diarrhœa, hurried respiration, palpitation, œdematous swellings of the feet and legs, hemorrhages from the nose, stomach, or liver, tremors, cramps and convulsions, and a feverish state. Serous effusions in the cavity of the thorax and abdomen have also been found in the bodies of those who have died without relief.<sup>1</sup>

2228. When the disease has advanced to this grade, it is sometimes called Chlorosis.

2229. We have already shown that excessive fulness of the uterine vessels is capable of producing suppression of the usual discharges from them (1403, &c.). This is but one symptom among many which occur together in this disease, and which have been shown to be effects of the same accumulation (chap. xix.).

2230. The success which attends the treatment founded on this view of the subject, confirms the doctrine advanced. From this it was inferred that evacuations from the venous cavity through the liver

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xlvii. 4.

would remove the symptoms, and experience has fully supported the inference. It is unnecessary to go fully into particulars on the treatment of this affection. Suffice it to make a general statement.

2231. The first cases treated by purging in the manner stated already (1579, &c.), having speedily ended in a favourable manner, other applications were made from various quarters. Some had suffered under suppression for many months; one for eighteen months; and one for five years. In all these cases this mode of treatment succeeded. Some used pills of rhubarb, aloes, and calomel; others pills of jalap, aloes, and calomel; the object being, as has been repeatedly stated, to produce every day, three or four of such passages as are known to proceed from the liver (1565, &c.).

2232. Some of these patients were great sufferers from pain in the side, back, along the ribs, in the head; from sleepiness, vertigo, want of appetite, or craving appetite, acidity, eructations, costiveness, anasarca swellings. The one who had been thus affected longest, took but four or five dozen pills. Some who had been affected but a few months, took six dozen. Of the whole number of cases, I am ignorant of the result in one only. The patient, a mulatto girl, ceased applying, and whether she had been relieved or not, I never could learn.

2233. A friend of mine informed me, in conversation on this subject, that he had seldom failed in restoring the menstrual discharge by using pills made of aloes and water, with as much rust of iron as the mixture would take up.

2234. Morgagni mentions a similar prescription used by a friend of his ; aloes and the filings of iron ; and says he knew a physician who had very good success from the use of aloes alone.

2235. Doctor Rotheram, who published an edition of Cullen's First Lines with notes, observes that the stimulant purges, scammony, aloes, &c., were more efficacious in these cases than the tonics and chalybeates ; both of which classes of medicine Cullen recommended, the latter to increase the tone of the system, the former *to excite the action of the uterine vessels*. Whytt also used a tincture of aloes to *determine the blood to the uterine vessels* (2046). These physicians seem to have overlooked the *cathartic* effect of scammony and aloes.

2236. Before the adoption of this practice, I had used several different modes of effecting a return of the menstrual discharge. The gum pill, in large doses, I have known succeed in a case of very long standing. Many years have elapsed since the occurrence of that case, and I cannot now say whether the medicine acted on the bowels or not ; it is however known that this medicine has the effect of opening the bowels ; and it was taken in very large doses.

2237. After the appearance of Doctor Klapp's paper on the use of the tincture of cantharides,<sup>1</sup> I used that medicine as he advised, and with uniform success ; perhaps with one exception, in which it did not perfectly relieve, and there was reason to believe in that case that it was not properly given. Two cases are worth mentioning. In the first, after a fair trial with-

<sup>1</sup> Medical Recorder, No. 5, p. 37

out success, relying on the uniform effect until that time, I intimated a belief that the patient was pregnant. This idea was utterly rejected ; it was declared to be impossible from the character of the girl, a favourite maid servant. Some months afterwards, however, she was seized with sudden pains in the night, and displeased, I believe, with the imputation cast upon her by my opinion, her mistress sent for another physician, informing him she had the colic. It was not long, however, before the birth of a child convinced all parties. In the second instance, a married woman applied. She was asked if she might not be pregnant. She was very positive, for certain reasons, it could not be, and insisted on a trial of medicine to restore her. She took this medicine for some time without effect, when I insisted on it she must be pregnant, and desisted. In a short time after it was ascertained that she was in the situation supposed.

2238. My reason, under these circumstances, for giving up this medicine is, that the laxative medicines, in a considerable degree, speedily relieve all the symptoms ; the disorder of the stomach, of the head, &c., which are not a little distressing, and which must more or less continue after the restoration of the menstrual discharge, unless it is very free. When the suppression has continued for many months, or more than a year, it is not to be supposed that the effects will be removed by any discharge likely to occur at the first return. The laxatives therefore carry off the whole disease ; the tincture cannot immediately effect this in old cases. In new cases the latter might answer as well.



*Of painful Menstruation.*

2239. It is very evident that the same causes which suppress the menstrual discharge, are capable of rendering it scanty. Such a discharge is always accompanied by some of the effects of accumulation of blood in the venous cavity. Sometimes the pain in the abdomen is very severe.

2240. The same remedies (2231) not only relieve these effects, but produce a free discharge.

2241. In these cases a moderate vomiting produces a most beneficial effect. Seeing a young lady lying covered up on a bed, shivering, with cold hands, exceedingly weak pulse, countenance shrunk and sallow, nausea, and excessive pain in the lower part of the abdomen, with scarce any discharge, I directed her to drink as much warm tea as she could swallow, and then to tickle her throat so as to vomit. In ten minutes after vomiting, she was walking about with a full pulse, good complexion, and complete relief.

2242. I have met with two cases in which there seemed to be a natural defect of the vessels, whereby they were unable to yield to the menstrual blood to as great an extent as is usual and necessary to health. The menses returned regularly, but were always very scanty, and the patients always suffered much pain, &c. : one was affected with vertigo, stupor, &c., and once fell to the ground.

2243. In one case the patient was compelled to take, nearly every time of the return, a dose of jalap and calomel, which carried off the pain, &c.

2244. In the last mentioned, a full trial was made

with the cathartic pills for several months, without increasing the discharge ; although the patient derived great benefit from the cathartics in other respects ; the pain, stupor, &c., being very much relieved. A full trial was afterwards made with the tincture of cantharides, without the least effect in increasing the discharge. From these two cases I conclude that scanty and painful menstruation is sometimes the consequence of a natural defect in the vessels ; and all that can be done is to remove the effects of the retained fluid in the way proposed, whenever they appear (2227).

2245. The same effects proceed from the menstrual discharge failing to appear at the usual time in young girls, which is called retention of the menses ; as well as from the occasional failure in women declining in years. Neither of these can be called disease ; they are the result of natural structure, or of change of structure : but they cause morbid symptoms (1252).

2246. Retention of the menses frequently occurs in persons in perfect health, who have not been exposed to any remote causes of disease. The first menstruation is almost always slight, and the fluid is often scarce coloured. These circumstances show that there is some opposition to be overcome, and it is evident that the indisposition in the vessels to yield, may be such as to forbid the passage of blood for some time.

2247. In these cases nothing should be done to force a discharge ; but the business should be left to take its natural course, until the effects of the accumulating blood make their appearance. These effects are the same with those already stated as occurring in sup-

pression of the menses (2227); and the same mode of removing them will be found effectual (2231, &c.).

2248. A young woman failing to menstruate at the usual time for the first appearance of the menses, became livid in the face, so much so under the eyes that she appeared as if she had received a blow; she had eruptions on the head, pain in the head and back; she was stupid, careless, and ill tempered.

She took a number of doses of jalap and calomel. The first discharges were as black as ink. They were kept up until all the symptoms were removed. Her skin became clear, the eruptions disappeared, the menstrual discharge became regular, and her temper was surprisingly altered for the better.

2249. In this state of things, in consequence of exposure to the remote causes (2225), the effects may be aggravated, and it may become necessary to use the remedy for a longer time.

2250. When the symptoms mentioned (2227), occur in consequence of irregularities in the return of the menstrual discharge, which they very commonly do, they are easily carried off by the use of the pills of rhubarb, aloes, and calomel, or some of the more active pills.

## CHAPTER XXXIII.

### OF DROPSY.

2251. A preternatural quantity of serous fluid in any of the cavities of the body from which there is no other vent than by the absorbents, is called a dropsy.

2252. Such a collection in the cellular membrane which connects the muscles and skin, is called anasarca; in the peritoneal cavity, ascites; in the cavity of the thorax, hydrothorax; in the cavity of the pericardium, hydrops pericardii, or dropsy of the pericardium; in the cavity of the cranium, hydrocephalus, or dropsy of the head.

2253. The serous fluid in anasarca, in consequence of the free communication between the cells of the cellular membrane, always inclines to the lowest part of the body; and wherever it accumulates it produces a tumor. When, therefore, the patient sits or stands, it makes its way down into the feet; and when he lies down, it flows back into the cellular membrane of the parts above. Hence patients observe, in the commencement of dropsy, that the feet swell in the day time, and the swelling disappears during the night. For the same reason, when patients lie much, and chiefly on one side, that side swells. Anasarcous swellings are distinguished by the continuance of a depression made by pressure on them, some time after the pressure is removed.

2254. The fluid in ascites, being confined in the cavity of the peritonæum, shows its presence by an enlargement of the abdomen, and is distinguished from other enlargements of that part, by a fluctuation in general easily discovered by laying one hand flat on one side of the abdomen, and striking the opposite side suddenly with the ends of the fingers two or three times.

2255. The fluid in hydrocephalus enlarges the head, when the quantity is considerable; until that time there is no certainty of its existence, the symptoms supposed to indicate this disease, arising sometimes from an increased quantity of blood in the vessels of the brain and its membranes.

2256. The presence of serous fluid in the thorax, or pericardium, is not indicated by any symptoms on which positive reliance can be placed.

2257. Dropsy being a preternatural quantity of the serous fluid necessary to the well-being of the different cavities of the body (2251), must necessarily proceed from increased secretion, or from diminished absorption of that fluid.

2258. That diminished absorption is not the cause, appears from the following considerations: All the known causes of dropsy operate in such a manner as to produce increased effusion, as will presently appear: there is no evidence that the remote causes can operate upon vessels so remote from their action as the absorbents are: the other absorbents are at the time in active exercise, as is evident from the emaciation of dropsical persons, from the absorption even of the fat



of the omentum,<sup>1</sup> from the constipated state of the bowels, notwithstanding the quantity of fluid often taken in, and from the evident fulness of the lymphatics, sometimes observed in dropsies.<sup>2</sup>

2259. It has been already shown that distension of the veins, arising from obstruction to the free course of the blood through them, produces increased effusion of serous fluid into the cavities in the neighbourhood of their minute branches (1360); and therefore that the obstruction arising from general fulness of the cava and its branches, or accumulation of blood in the venous cavity, is capable of producing it (1361).

2260. Excessive use of spirituous liquors, and very large evacuations of blood, spontaneous or artificial,<sup>3</sup> are known remote causes of dropsy. Morgagni states a case of dropsy of the pericardium which immediately followed the operation of a cathartic which produced fifty passages, by which a great quantity of serum was evacuated, and intolerable thirst brought on.<sup>4</sup> The effect of miasmata in producing dropsy, is familiar to those who have practised in warm, marshy countries. A young man, whose occupation for a living was cutting down weeds in marshy grounds, "fell naturally from his manner of life into a dropsy, and that a general one," says Morgagni<sup>5</sup> (1764).

Morgagni also mentions a case of dropsy which followed great uneasiness of mind;<sup>6</sup> and one which followed excessive exertion, which weakened the patient so much that he never recovered his strength.<sup>7</sup>

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xxxviii, art. 4.

<sup>2</sup> Ibid. art. 6. 10. 12. 13. <sup>3</sup> Cullen's First Lines, &c. MDCLX.

<sup>4</sup> Morgagni of the Seats and Causes of Diseases, Let. xvi, art. 43.

<sup>5</sup> See also Let. xxii, art. 10. 11. <sup>6</sup> Ibid. Let. xvi, art. 4.

<sup>7</sup> Ibid. Let. xxxvi, art. 25.

2261. These are known causes of weakened action of the heart, and therefore of accumulation of blood in the venous cavity (1218).

2262. Morgagni also mentions dropsy having followed the repulsion of eruptions on the surface,<sup>1</sup> and the suppression of the menstrual discharge,<sup>2</sup> which are causes of the same accumulation (1257. 1252).

2263. The marks of the presence of this accumulation are seen in dropsical persons, viz. pale countenance, and weak pulse (1219).

2264. The effects of this accumulation are also present in dropsical persons; viz. diminished and high coloured urine (1411. 1412), sometimes with a mixture of blood<sup>3</sup> (1372); thirst; tumid, livid face;<sup>4</sup> pricking sensation in the right side; pain in the right side, in the epigastrium, and through the abdomen<sup>3</sup> (1333. 1334); diarrhœa<sup>3</sup> (1422); disordered head, stupor, delirium<sup>3</sup> (1319 to 1323); anorexia (1458); intermitting pulse; difficulty of respiration; inability to lie otherwise than on the back; sudden sense of suffocation when lying;<sup>3</sup> and in an extremely low state, *increased difficulty of breathing and sense of suffocation on rising and sitting erect in bed*<sup>4</sup> (1292. 1296 to 1301).

2265. That accumulation of blood in the venous cavity is the proximate cause of dropsical effusions, is confirmed by the fact, that chlorotic women,<sup>5</sup> and all persons in a very debilitated state from long-continued intermittent or remittent fevers,<sup>6</sup> are very liable

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. iv, art. 30. Let. xvi, art. 34. 35. <sup>2</sup> Ibid. Let. xlvii, art. 4. <sup>3</sup> Ibid. Let. xxxviii, art. 30.

<sup>4</sup> Ibid. art. 4. Compare this with Let. xix, art. 3. 4.

<sup>5</sup> Cullen's First Lines. &c. MDCLX. <sup>6</sup> Ibid. MDCLVI.

to have dropsical effusions added to the other symptoms ; and it has already been shown that this accumulation is the cause of the symptoms observed in chlorosis, and in lingering and badly cured fevers (2227. 2228. 1526, &c.).

2266. Dropsical swellings have been attributed to obstruction (2259) arising from a scirrhus or enlarged state of the liver and spleen, from the pressure of the uterus in advanced pregnancy, and from the pressure of tumours of the abdomen.

2267. Tumours of the abdomen rarely occur, and should not be taken into consideration in discussing the pathology of this disease, which generally arises from the operation of causes acting on the whole system (2260 to 2262).

2268. The enlarged state of the uterus in advanced pregnancy, may have some effect in obstructing the blood ascending from the lower limbs, and thus produce œdematous swelling of the feet and legs, but this is not even a general occurrence in pregnant women. This cause also should be set aside in investigating the pathology of dropsy as produced by causes of general operation.

2269. It remains to consider the claim of scirrhus or enlarged liver or spleen, to be the cause of dropsical effusions.

As these affections of the liver and spleen are very commonly observed in connexion with dropsical swellings, there seems at first view considerable ground for the doctrine, particularly as it regards ascites. A strict examination, however, will show that there is not sufficient ground for it.

2270. The following cases are taken from Morgagni's work on the Seats and Causes of Diseases. They are all that he has referred to in his index of "Prenatural appearances in dead bodies," under the three heads of *large*, *very large*, and *hard* liver.

2271. A man of forty, subject to various affections of his head, stomach, and bowels, at length died. "Having opened the abdomen, nothing appeared that was worthy of notice, except a little quantity of stagnant serum, and a hard liver." There was some serum also "betwixt the pia mater and brain, and some also in the ventricles of the brain."<sup>1</sup>

2272. A young man given to drinking, suddenly died. His liver was enlarged, hard, and somewhat white: his spleen was also enlarged, and flaccid: his pancreas was hard. There is no mention of serum in any cavity, except a very small quantity in that of the cranium.<sup>2</sup>

2273. In a middle aged man who died suddenly some months after having recovered from an illness, the liver was hard, the spleen was larger and softer than usual. There is no mention of serum in the abdomen: in the pericardium there was a moderate quantity of somewhat bloody serum.

The internal jugulars were much distended, and the vessels of the brain turgid; and there was serum under the pia mater, a pretty large quantity in the ventricles, and some flowed out of the tube of the vertebrae.<sup>3</sup>

2274. A countryman upwards of sixty years of age,

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. i, art. 4.

<sup>2</sup> Ibid. Let. iv, art. 16.

<sup>3</sup> Ibid. art. 24.

died of stupor and delirium proceeding from the sudden healing of old sores. On dissection the liver was found larger than usual, but not harder, and variegated like marble with small yellow spots: the spleen was very large, and covered with large oblong black spots. In the cavities of the abdomen and thorax, a little serum was found.<sup>1</sup>

2275. In the abdomen of an old man near eighty years of age, the liver was hard and whitish: no serum in the cavity of the abdomen, some little in the cavities of the thorax and cranium.<sup>2</sup>

2276. A man about seventy years of age, of a pallid complexion, and small and frequent pulse, appeared as if half asleep, and had a pain under the sternum. He was bled and otherwise treated as for an incipient inflammation of the breast: the pain was removed, but a stertor followed, with a faltering pulse, and stupor: the stertor in a few days left him, but the stupor increased, with his pulse weak, and strength decreased; and at length he died.

The liver was found hard and white: no serum in the abdomen; a pretty large quantity in the right side of the thorax, and a little in the left; and a pretty large quantity in the cavity of the cranium.<sup>3</sup>

2277. In a man of seventy, a great drinker, the liver was hard; and there was a small quantity of serum in the lower part of the pelvis. There was also a considerable quantity of yellowish serum in the left side of the thorax.

The vessels of the pia mater were very turgid, and

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. iv, art. 30.

<sup>2</sup> Ibid. art. 35.      <sup>3</sup> Ibid. Let. vi, art. 12.



there was a great quantity of water in the cavity of the cranium.<sup>1</sup>

2278. An elderly nobleman, subject to the appearance of various objects before his eyes, to the stone, to vertigo, to convulsive and paralytic attacks, difficulty of breathing, diminished urine, swelled legs, and tumid abdomen, at length died convulsed.

The liver was harder than natural; but little or no water in the abdomen. In the thorax there was the greatest quantity imaginable; in the pericardium a great quantity; and much in the cavity of the cranium.<sup>2</sup>

2279. In an old man who died the same day on which he was carried to the hospital, the liver was found somewhat hard, and the spleen large and turgid, but no water in the abdomen.

The vessels which creep through the parietes of the lateral ventricles of the brain, were very turgid with blood; and there was a little serum in the cavity of the cranium.<sup>3</sup>

2280. A bishop, seventy-two years of age, having died of a prevalent catarrh, his body was dissected for embalming. The liver was very large, brownish, and somewhat hard. Morgagni, however, thought that this was natural, because there had been no peculiar mark of this viscus being diseased. Be that as it may, no fluid was found in either cavity.<sup>4</sup>

2281. A middle aged husbandman, of a brown skin, and lean habit, died in consequence of excessive drink. The liver was found somewhat hard and pale. There

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. vii, art. 11.

<sup>2</sup> Ibid. Let. x, art. 11. <sup>3</sup> Ibid. art. 19. <sup>4</sup> Ibid. Let. xiii, art. 3.

was in the cavity of the abdomen, as much serum as would fill a glass of moderate size, and in each side of the thorax there was about the same quantity.

The vessels of the pia mater were distended with blood; and there was some limpid serum in the cavity of the cranium.<sup>1</sup>

2282. A woman about twenty-six years of age, after great uneasiness of mind, swelled slightly in her whole body, but much more in the abdomen. Her respiration was very difficult, and she at length died. The stomach was very turgid, and the liver large; but there was little serum in the abdomen. The thorax was entirely full.<sup>2</sup>

2283. A young woman of eighteen, having had an eruption repelled by an ointment, was affected with great difficulty of respiration, without fever; and being bled, the disease increased, and she died.

The liver was hard; no water was found in the abdomen; but so great a quantity in the pericardium, that it was hard to the touch.<sup>3</sup>

2284. A country woman about twenty-five years of age, and in the third month of pregnancy, was received into the hospital at Padua, with "a kind of small erratic fever," and died.

"The spleen was a little larger than it ought to be; and the liver much more so, as it extended itself both lower than it used to be, and across quite to the spleen." It was not hard.

There was a small quantity of water "in the extreme parts of the feet." There is no mention of wa-

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xiv, art. 35.

<sup>2</sup> Ibid. Let. xvi, art. 4.      <sup>3</sup> Ibid. art. 34.

ter in the cavity of the abdomen; but in the right cavity of the thorax there was a large quantity of yellowish water, some in the left cavity, and the pericardium "was almost full."<sup>1</sup>

2285. In a man of fifty, addicted to drinking, the liver and spleen were found to be pretty hard, and the latter larger than natural; but there is no mention of serum in the cavity of the abdomen. There was water in the thorax; and there was an aneurism which had displaced and destroyed some of the bones enclosing that cavity.<sup>2</sup>

2286. In a man about forty years of age, the liver was found somewhat hard; "the spleen was so lax that by applying the fingers to it, it was torn to pieces without any difficulty." There is no mention of serum in the cavity of the abdomen. There was some, however, in that of the thorax. The vessels of the pia mater were turgid, and there was serum under that membrane, and in the lateral ventricles.<sup>3</sup>

2287. In a woman of middle age, in the third month of pregnancy, the liver was found to be "the biggest I had ever seen at that time" (says Morgagni); it was also every where hard. The spleen was large. No mention of serum in the abdomen.

In the thorax there was a little turbid water on both sides. In the pericardium was some turbid reddish water, and a small quantity of water under the pia mater.<sup>4</sup>

2288. A soldier of middle age complained of a pungent pain of one side, with fever, cough, and difficult

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xvi, art. 38.

<sup>2</sup> Ibid. Let. xviii, art. 25. <sup>3</sup> Ibid. Let. xxi. art. 23. <sup>4</sup> Ibid. art. 24.

respiration: becoming "almost lethargic, and slightly delirious, his fingers trembling, and on the last days being without pulse, he died."

The right lobe of the lungs was enlarged, heavy, and almost universally hard. There was no extravasated water in the thorax. "In the pericardium was no very small quantity of water."

The greater part of the vessels which creep through the pia mater, were turgid with blood. "While the skull was cut into, no small quantity of water flowed down from it;" "in the lateral ventricles was a great quantity of a somewhat turbid water."

The liver was large, and in the greater part of it whitish; and was not sound internally: "the spleen was not a little bigger than usual:" the pancreas was pretty hard. There is no mention of water in the abdomen.<sup>1</sup>

2289. In a man who died of a relapse into a pleurisy, the liver was found hard, and there was a considerable quantity of water in the abdomen. There was also a considerable quantity in both sides of the thorax, and in the pericardium. The cranium was not examined.<sup>2</sup>

2290. In a young man who died of a fever in January, the liver was found very large and whitish, but no mention is made of water in the abdomen. In the right side of the thorax, and in the pericardium, some serum was found.<sup>3</sup>

2291. In a young man addicted to drinking, the liver and spleen were found hard: in the abdomen

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xxi, art. 33.

<sup>2</sup> Ibid. art. 34.    <sup>3</sup> Ibid. art. 36.

was some water; and in the thorax also, yet not in a very considerable quantity.<sup>1</sup>

2292. In a woman of forty, the liver was found somewhat hard, the spleen very large, and harder than it ought to be. The pancreas also was very hard. There was stagnant water in the abdomen, but not in great quantity.

There was also serum in the thorax, and a great quantity in the pericardium.<sup>2</sup>

2293. "A robust man, without any manifest preceding cause, was troubled with a continual endeavour to vomit; yet besides his medicines, and his food, none of which he could retain, he vomited but little at a time, and seldom, and what he did bring up was watery, and for the most part bitter. Besides this, he was troubled with a great thirst, with a kind of frequent swoonings, and, in particular, with a pain, just as if he were torn to pieces by dogs, at the common boundaries of the thorax, and belly: which, if you examined it with the hand, had not the least hardness, or resistance, whatever. With these symptoms, and with a low pulse, he died within the eleventh day."

The liver was found very large, but sound; there was no water in the abdomen.

"In the thorax was much water, and in the pericardium, a very large quantity, like to that in which fresh meat has been washed."<sup>3</sup>

2294. A man aged thirty-three years died of a complication of disorders, but particularly of a dropsy.

The liver and spleen were larger than natural, and

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xxi, art. 49.

Ibid. Let. xxii, art. 22.

<sup>3</sup> Ibid. Let. xxx, art. 10.



the former was whitish and hard also, and its lobules conspicuous. 'This is what is called a scirrhus liver.' The pancreas was hard. There was not more than two pints of water in the cavity of the abdomen. There was some water under the skin universally. In both cavities of the thorax there was a considerable quantity of water.<sup>1</sup>

2295. In a man of forty, the liver was found exceedingly large, and disordered; the spleen was very small. There was no extravasation of any kind of moisture either in the abdomen or the thorax.<sup>2</sup>

2296. In a woman of forty, the liver was found very large, and hard, and the abdomen was found full of a yellow water. No water in the thorax.<sup>3</sup>

2297. In a woman of sixty, the liver was found hard, and the spleen twice as large as the natural size. In the abdomen was a great quantity of limpid water. No water in the thorax.<sup>4</sup>

2298. A man of forty years of age, infirm in health for a year, died of a fever.

The liver was immoderately large, and harder than common. The spleen was twice as large as it naturally is, in every dimension. No mention made of water in the cavity of the abdomen, nor in that of the thorax; in the pericardium some spoonfuls of bloody serum; two veins on the posterior surface of the heart were turgid with blood, and in a manner varicose.<sup>5</sup>

2299. In a man of middle age, the liver was found to be so large that it was supposed to weigh fourteen

\* Baillie's Morbid Anatomy, p. 137.

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xxx, art. 12.

<sup>2</sup> Ibid. art. 14. <sup>3</sup> Ibid. Let. xxxvi, art. 2.

<sup>4</sup> Ibid. art. 4. <sup>5</sup> Ibid. art. 23.

pounds; it was also hard, and pale. The spleen was twice as large as the natural size, and whitish.

There was a slight œdematous swelling in the scrotum, and a still more slight one in the feet. The belly contained a great quantity of extravasated water.<sup>1</sup>

2300. In a young man of seventeen, the whole liver was found hard; the spleen somewhat enlarged, but sound. The belly was full of water. The cavity of the thorax on the right side overflowed with water.<sup>2</sup>

2301. In a woman the liver was found hard, the abdomen was full of water, but no other cavity.<sup>3</sup>

2302. In a man the liver was found scirrhus, but not enlarged: the spleen was large and compact, and on cutting into it no blood appeared. "The belly contained a quantity of fetid water, of a green colour, inclining to yellow, with which the parietes were distended to their utmost capacity."

"In the thorax, and particularly on the right side, was a great quantity of water, of the same kind with that in the belly. So in the pericardium also, in which, however, there was no great quantity."<sup>4</sup>

2303. In a man of twenty-five years of age, the liver was found indurated, and the spleen large, but no mention is made of water any where.<sup>5</sup>

2304. In a woman who died at middle age, the liver was found very large, the spleen large, but no disease was perceived in either. No serum in the abdomen. There was a considerable quantity in the thorax; the pericardium was full of it.

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xxxvi, art. 25.

<sup>2</sup> Ibid. Let. xxxviii, art. 16. <sup>3</sup> Ibid. art. 20. <sup>4</sup> Ibid. art. 30.

<sup>5</sup> Ibid. Let. xlv, art. 7.

“The medullary substance of the cerebrum, wherever you cut into it, and the surface of the lateral ventricles also, showed small vessels turgid with blood: and in the same ventricles was a serum of a colour inclining to a dirty yellow.”<sup>1</sup>

2305. In a woman of thirty-five, the liver was large. “In the cavity of the pelvis of the abdomen was a small quantity of water.” The thorax was not opened.<sup>2</sup>

2306. In a woman who died at an advanced age, the liver was found large; there was no water in the abdomen: there was some under the pia mater.<sup>3</sup>

2307. In a young man killed by a wound with a butcher’s knife, the liver was found large, and the spleen larger than natural. No water in the abdomen, nor in the thorax, but in the pericardium there was a yellowish water in considerable quantity.<sup>4</sup>

2308. In a woman who died at sixty years of age, the liver was found hard: no water was found in the abdomen, but about a pint in the right side of the thorax, and some also in the left.<sup>5</sup>

2309. In a man of fifty-eight, the liver was found much larger than natural, but no water in any cavity.<sup>6</sup>

2310. In a man near fifty years of age, the liver and spleen were large, yet not morbid: there was no water in any cavity.<sup>7</sup>

2311. In twenty-three of these forty cases, in which the liver was hard, or enlarged, or both, there was no water in the abdomen (2272. 2273. 2275. 2276. 2279. 2280. 2283. 2284. 2285. 2286. 2287. 2288. 2290. 2293. 2295. 2298. 2303. 2304. 2306. 2307. 2308. 2309. 2310).

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xlv, art. 16.

<sup>2</sup> Ibid. Let. xlviii, art. 37. <sup>3</sup> Ibid. art. 38. <sup>4</sup> Ibid. Let. liv, art. 37.

<sup>5</sup> Ibid. Let. lvi, art. 7. <sup>6</sup> Ibid. Let. lxiv, art. 15. <sup>7</sup> Ibid. Let. lxix, 2.

In twelve of these twenty-three cases, the spleen was also enlarged or hard (2272. 2273. 2279. 2284. 2285. 2287. 2288. 2298. 2303. 2304. 2307. 2310).

In two of these cases, in which both liver and spleen were enlarged or hard, the patient was also pregnant (2284. 2287).

2312. Of these twenty-three cases, in which there was no water in the abdomen, there was water in the thorax alone, in two cases (2285. 2308); in the thorax and pericardium, in three cases (2284. 2290. 2293); in the thorax and cranium, in three cases (2275. 2276. 2286); in the thorax, pericardium, and cranium, in two cases (2287. 2304); in the pericardium alone, in three cases (2283. 2298. 2307); in the pericardium and cranium, in two cases (2273. 2288); and in the cranium alone, in three cases (2272. 2279. 2306).

2313. In ten other cases of these forty, there was little or no water in the cavity of the abdomen (2271. 2274. 2277. 2278. 2281. 2282. 2291. 2292. 2294. 2305).

In four of these ten cases the spleen also was enlarged or hard (2274. 2291. 2292. 2294).

2314. Of these ten cases in which there was little or no water in the abdomen, there was water in the thorax also in three cases (2274. 2282. 2291); in the thorax and pericardium, in one case (2292); in the thorax and cranium, in two cases (2277. 2281); in the thorax, pericardium, and cranium, in one case (2278); in the thorax and under the skin, in one case (2294); in the cranium, in one case (2271); and in the cavity of the abdomen alone, in one case only (2305), and in that the thorax was not opened.

2315. In seven cases only of the forty, was there a

considerable or a great quantity of serous fluid in the cavity of the abdomen (2289. 2296. 2297. 2299. 2300. 2301. 2302).

In four of these seven cases, the spleen also was enlarged or hard (2297. 2299. 2300. 2302).

2316. Of these seven cases there was water in the thorax also, in one case (2300); in the thorax and pericardium, in two cases (2289. 2302); in the abdomen alone, in four cases (2296. 2297. 2299. 2301).

2317. It is evident that if hard or enlarged liver has any effect in producing dropsical effusion by obstructing the course of blood in the veins, the effusion must be into the cavity of the peritonæum; but it appears that in a majority of the above cases there was no water in the abdomen (2311).

2318. We can readily believe that enlarged or scirrhus liver, by obstructing the blood returning through the vena portæ, tends to produce ascites; but we cannot conceive how obstruction in the liver can produce effusion into the thorax, the pericardium, or the cranium. Scirrhus and enlarged liver, however, are more frequently connected with effusion into the other cavities, than into the cavity of the abdomen; there having been, in the forty cases abovementioned, water in the abdomen in seventeen cases only (2311), while in the thorax there was water in twenty-one cases (2312. 2314. 2316).

2319. It further appears, that in fifteen cases mentioned by Morgagni in his sixteenth letter,<sup>1</sup> and six others referred to in his "Index referring to Diseases

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xvi, art. 2. 6. 8. 10. 12. 14. 17. 19. 21. 26. 28. 30. 36. 40. 43.



and their Symptoms," under the two heads, *Anasarca*, and *Dropsy*, in eleven of which twenty-one cases there was water in the abdomen, the liver was neither hard, nor enlarged.<sup>1</sup>

2320. Of sixty-one cases therefore, comprised under the heads of *large, very large, and hard liver*, and of *anasarca, dropsy, and dropsy of the thorax*, the liver was not hard or enlarged in twenty-one cases, and dropsical effusions were found in different cavities; and, of forty cases in which the liver was hard or enlarged, there was no dropsy of the abdomen in twenty-three cases.

It is evident, therefore, that hard or enlarged liver cannot be the cause.

2321. Much less can hard or enlarged spleen be the cause of dropsy. Although obstruction in the liver may cause effusion of serous fluid from the exhalent branches of the minute arteries which pass into the corresponding veins which unite to form the vena portæ, it is evident that such obstruction of the splenic vein cannot produce this effect; because the splenic artery subdivides in the substance of the spleen, and if effusion should take place from its minute branches, it must be into the substance of the spleen, and cannot produce serous effusion into the cavity of the peritonæum.

2322. Accordingly, enlargement and hard state of the spleen do not appear, from the statements made above, to influence the quantity of fluid effused.

Of the twenty-three cases of hard or enlarged liver

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xxii, art. 10. Let. xxxviii, art. 6. 10. 18. 26. 28.

in which there was no water in the abdomen, the spleen also was hard or enlarged in twelve (2311).

Of the ten cases of hard or enlarged liver in which there was little or no water in the cavity of the abdomen, the spleen also was hard or enlarged in four (2313).

Of the seven cases of hard or enlarged liver in which there was a considerable quantity of water in the abdomen, the spleen also was enlarged or hard in four (2315).

Of the twenty-one cases of dropsy in which there was no hardness or enlargement of the liver (2319), the spleen was enlarged in three, and hard in a fourth; but in that case in which it was particularly large, being three times as large as natural, there was no water in the abdomen.<sup>1</sup>

2323. It appears from the sixty-one cases quoted, that dropsy seldom occurs in one cavity alone; and that in most cases several cavities contain water. Thus, in twenty-two of the forty cases first mentioned (2271 to 2310), water was found in two or more cavities (2312. 2314. 2316); and in fifteen of the twenty-one cases last mentioned (2319), water was found in two or more cavities.<sup>2</sup>

2324. It follows from this that dropsy is the effect of a cause which operates on the vessels which effuse serous fluid into all the cavities. Such a cause is accumulation of blood in the venous cavity; which has been shown to be the effect of the remote causes of dropsy (2260 to 2262); to be capable of producing

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xvi, art. 6.

<sup>2</sup> Ibid. Let. xvi, art. 2. 6. 8. 10. 17. 19. 30. 36. 40. Let. xxii, art. 10. Let. xxxviii, art. 6. 10. 18. 26. 28.

effusion of serous fluid (2259); to be present when this effusion is going on (2263), producing at the same time other of its known effects (2264).

2325. Accumulation of blood in the venous cavity is therefore the proximate cause of dropsical effusions.

2326. This accumulation is evinced in some of the foregoing cases (and the doctrine is thereby confirmed), by the turgid state of the vessels of the brain in those cases in which water was found in the cavity of the cranium (2273. 2277. 2279. 2281. 2286. 2288. 2304). In one of these cases it is stated also that the internal jugulars were much distended (2273).

2327. The doctrine is confirmed by another consideration. Although enlarged or hard liver and spleen are not the cause of dropsy, it is evident that there is a very intimate connexion between them, dropsical effusions having been found in thirty-five of the forty cases above stated (2271 to 2310) in which the liver and spleen were enlarged or hard; viz. in every case but five (2280. 2295. 2303. 2309. 2310). These very enlargements of the liver and spleen have been shown to be effects of accumulation of blood in the venous cavity (1303). It is then because they are effects of the same cause, that enlargement of the liver and the spleen and dropsical effusions, are so frequently found together.

2328. It has been considered a matter of great importance to ascertain exactly the cavity in which dropsical effusions are contained. This question is easily decided with respect to anasarca and ascites, the effect of pressure in the former, and the fluctuation in the latter, sufficiently determining the nature of the

affection (2253. 2254) ; but a collection of water in the thorax, in the pericardium, or in the cranium, is not so easily ascertained.

2329. It is impossible to distinguish between hydrothorax, and hydrops pericardii. Morgagni, after a long discussion of this subject, and referring to the opinions of various celebrated anatomists, and to the criteria by which they proposed to distinguish them, concludes that this cannot be sufficiently done by all the marks hitherto considered.<sup>1</sup>

2330. It is even very difficult positively to ascertain the existence of water in the thorax, whether confined to the pericardium or not.

2331. The symptoms which are attributed to a collection of serum in the thorax, and are therefore considered as indicating dropsy of that cavity, are uneasiness at the lower end of the sternum ; difficulty of breathing, particularly after some exertion, at length becoming constant, but increased by exertion, increased also by lying sometimes on one side, sometimes on either ; a cough at first dry, afterwards accompanied by expectoration of mucous matter ; a sense of suffocation soon after falling asleep, inducing the patient hastily to rise up in bed for relief ; together with a scarcity of urine, and a swelling of the feet and legs.

2332. The uneasiness at the lower end of the sternum, the difficulty of respiration, the cough, and the sense of suffocation on falling asleep, are the only symptoms mentioned which have any connexion with the thorax. Of the other symptoms, scarcity of urine is common to dropsy of every cavity ; and the swelling of the feet and legs is anasarca itself.

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xvi, art. 47.

2333. It is admitted that the former symptoms do not with any certainty indicate hydrothorax, and that reliance is only to be placed in the appearance of the latter in addition to them.<sup>1</sup> That is to say, there is no dependance to be placed on the symptoms peculiarly indicating affection of the thorax, but only on those indicating anasarca. The reason is obvious : dropsy is a general disease, depending on a general cause ; when, therefore, one part is found to be affected with dropsy, it is three to two (2323) that some other part is also ; and consequently, when dropsical swellings of the feet and legs are accompanied by difficult respiration, it is almost certain that there is a dropsy of the thorax also.

2334. The truth is, that water in the chest is but one effect of the cause of the disease in question ; and the uneasiness at the lower end of the sternum, the palpitation, the difficulty of respiration, the cough, the sense of suffocation, are all effects of the same cause, viz. accumulation of blood in the venous cavity (1270 to 1302).

All the latter are more easily produced than serous effusion ; this, however, very often appears at last. Hence it is that water is so frequently found in the thorax of those who have been long troubled with these symptoms ; and hence also it is that physicians have sometimes been so greatly disappointed, in not finding water in the thorax of persons in whom they confidently expected to find it,<sup>2</sup> the patient dying before this *effect* was produced.

<sup>1</sup> Cullen's First Lines, &c. MDCC.

<sup>2</sup> Morgagni of the Seats and Causes of Diseases, Let. xvi, art. 11. 25.



2335. It has been considered very certain that a collection of serous fluid exists in the thorax, when the difficulty of respiration is increased by a recumbent posture, and by certain positions, (as by lying on one side or the other, or on either, rendering it necessary to lie on the back,) and particularly when a sudden sense of suffocation soon after falling asleep, causes the patient to rise hastily. This opinion rests on another, that these sensations, the last mentioned in particular, are produced by such a collection. This is not so.

2336. It is not intended to say that a large collection of water in the thorax does not contribute to render respiration difficult; but that this is not the cause in the first instance; that it is not the cause of these symptoms when they first appear, because it does not then exist: but when afterwards effusion of serum into the thorax is produced, by occupying part of the cavity, it renders the proximate cause more effectual in producing the sensations in question; so that a smaller accumulation of blood in the cava, &c., will produce them, and consequently they will more easily, and therefore more frequently be excited.

2337. It is evident that whatever effect such a collection may have, must be permanent. In the commencement, however, this difficulty of respiration is very variable; sometimes it is not felt, sometimes it almost amounts to suffocation; and I have often distinctly observed that these paroxysms of the affection occur when the pulse is from any cause greatly reduced in force: the weaker the pulse, the greater the difficulty of respiration; consequently, the greater the quantity of blood accumulated in the cava, &c., the greater the difficulty.

2338. With regard to these several circumstances, I have attentively observed for some years a patient of mine, and have repeatedly remarked, 1. That she does not always feel a difficulty of respiration on lying down; 2. That she cannot lie on either side, without producing difficulty of respiration, but the difficulty does not occur immediately on lying on one side, but after a short time; 3. That she is frequently awaked, soon after falling asleep, by a sense of suffocation, and is compelled hastily to rise and sit up; 4. That when these sensations occur, they are accompanied by a weak pulse, and palpitations; and consequently by an accumulation of blood in the cava, &c. (1218).

2339. It is evident here, that if the difficulty proceeded from a collection of water, it would always be felt on lying down; and would be felt immediately on lying down, and not after falling asleep.

It is equally evident, from the difficulty occurring at the time when there is an accumulation of blood in the cava, &c. (2338), which accumulation is capable of producing this symptom (1296, &c.), that it proceeds from this cause in this case.

2340. The same is clearly evinced by the effect of a very great menstrual discharge. This patient had, a short time since, after an interval of two months, a return of the menstrual discharge, far greater than she ever before experienced, so that she was repeatedly near fainting: since that time she has not had the least difficulty in sleeping on either side; nor has she once been awaked by a sense of suffocation; but rests quietly all night.

2341. It is also evinced by the effect of continued

purging with the pills of rhubarb, aloes, and calomel. Whenever she continues to use them for some days, in consequence of an increase of these symptoms from fatigue, want of rest, &c., they remove them; and the patient, from having a pale and shrunk countenance, and weak pulse (1219), acquires a good colour, looks fuller in the face, and has a strong pulse. This effect is so well known to her by experience, that she no longer requires to be advised what to do when these symptoms come on.

These symptoms being so immediately removed by evacuations from the venous cavity, either natural (2340), or artificial (2341), it is perfectly obvious that they owe their continuance to great fulness of that cavity.

2342. It is equally evinced by the effect of the pills of jalap, aloes, and calomel; which in her always produce watery passages: they invariably increase the difficulty of respiration, rendering her paler and weaker. This has been ascertained by repeated trials; at first because the difference of effect had not been observed, and afterwards by inadvertently using now and then, one pill for the other.

Medicines which act in this manner exhaust the patient, often produce extreme coldness and excessively weak pulse, and consequently accumulation of blood in the venous cavity (1206. 1218. 1837).

2343. I have in other cases distinctly observed, when the patient was making the greatest complaint of difficulty of respiration, sometimes amounting almost to suffocation, that the pulse was excessively feeble. In one case in which this was very often observed for a

long time, there was found after death but four ounces of water in the cavity of the thorax, eight in that of the pericardium, and sixteen in that of the peritonæum. It is obvious that so small a quantity of serum could not have produced such an excessive sense of suffocation; particularly as the latter had occurred so long before death; and had occurred in such violent paroxysms: and it is equally obvious that the occurrence of these paroxysms at the time of excessive weakness of the pulse, and consequently of excessive accumulation of blood in the cava, &c., points to the latter as the cause.

2344. This is confirmed by another consideration. The only mode in which a collection of water can be supposed to produce difficulty of respiration, is by occupying the space in the thorax intended for the free play of the viscera contained therein. But it is evident that there is no proportion between the effects in this case (2343) and the space occupied by twelve ounces of water. On the other hand, the quantity of blood left in the cava in some minutes, when the action of the heart nearly ceases, might well be supposed to impede the action of the lungs. In a few minutes a quantity equal to the whole mass of blood in the body passes through the heart. If the action of the heart be reduced only one half, half that quantity will be left in the cava, &c., in a few minutes. Here is a cause proportioned to the effect; and this effect we often see in cases in which, from the suddenness of the attack, and the good health before and after, there is no suspicion of hydrothorax.

2345. Moreover it is not easy to conceive how a col-

lection of serum in the thorax can produce the changes which arise from change of posture. Lying down increases the difficulty of respiration, but does not increase the quantity of water; nor does it enable the water to occupy more space.

In this posture, however, the whole weight of the bowels presses directly upon the viscera in the abdominal cavity; and forces the blood in their veins forwards through the liver into the cava; whence accumulation in that vein and its superior branches, and during the accumulation difficult respiration is felt. Sometimes the accumulation increases so slowly, that the patient falls asleep before it amounts to a sufficient degree to produce difficult respiration; and he is then compelled suddenly to rise.

2346. It sometimes happens that a dropsical patient can lie down without inconvenience, but experiences the difficulty of respiration on rising and sitting erect.

2347. A patient of mine had a countenance livid in some places, and bloated from excess of blood in the vessels, and not at all anasarcaous; the abdomen greatly enlarged by a collection of water in the cavity of the peritonæum; the legs and feet greatly swelled, and excessive difficulty of breathing. She had been thus affected for a long time, having been dropsical for many years. Being requested to sit up for a short time, (her excessive weakness having compelled her to lie down the most of her time,) immediately on rising she became very pale, felt the sense of suffocation increase, so as to complain of choking, and hastily lay down again for relief.

2348. Morgagni has a case very similar to this. The



patient breathed laboriously, and more so when lying on the left side. "But if she sat up in bed, then the difficulty of breathing was so much increased that she was almost suffocated thereby." Towards the last she had frequent swoonings, "her face was tumid, and in some measure inclined to a livid colour."<sup>1</sup>

2349. In another case, without any appearance of anasarca, or of ascites, it was evident that a collection of serum in the thorax was not the cause of the sense of suffocation, and the starting up soon after falling asleep. The patient mentioned above (2340), soon after falling asleep in a chair, frequently starts up, precisely with the same feelings as occur after going to bed.

It is evident that no change could in this posture have occurred with respect to the serum in the thorax; and therefore that that fluid, admitting its presence, could not have produced this change in the feelings.

2350. Another circumstance showing the same thing, is the occurrence of the same symptoms when there is water in the pericardium alone. Water in this cavity cannot, unless in very great quantity, interfere with the action of the lungs; and not being able to change its place, cannot produce more effect in one position of the body than another; therefore it cannot be the cause of the symptoms in question. As therefore the water in the pericardium does not produce these symptoms, and in the case supposed (dropsy of the pericardium alone) there is none in the thorax, it is not produced by water at all.

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xxxviii, art. 4.

2351. That this sense of suffocation does not proceed from a collection of water in the thorax, but from accumulation of blood in the venous cavity, is further evident from its occurring in other diseases, in which there is no suspicion of such a collection.

2352. It occurred in the case of epilepsy mentioned at 1760, in company with palpitation, and other effects of accumulation of blood in the venous cavity. The disease was in this case of short duration; mercurial cathartics having speedily removed it.

2353. The difficulty of respiration, and starting up in sleep, occur in asthma also;<sup>1</sup> in which disease it is not pretended that there is a collection of water in the thorax, except in a very advanced stage of the disease.

2354. The view that is taken of the nature of hydrothorax in the preceding passages (2334), is confirmed by what occurs in asthma. In this disease also, there is a difficulty of breathing, increased by a horizontal position, and by exertion; the patient has also a cough and expectoration of mucus; and is frequently compelled to rise hastily in the night and sit erect. The chief difference between the two is, that in asthma these symptoms are more violent.<sup>2</sup> These symptoms continue for a long time without any one's pretending to attribute them to water in the thorax; but it is said, "*After a long continuance, it (the asthma) often ends in hydrothorax:*"<sup>3</sup> that is to say, after these symptoms have continued a long time, an effusion of water into the cavity of the thorax is also produced.

<sup>1</sup> Cullen's First Lines, &c. MCCCCLXXVIII.

<sup>2</sup> Ibid. MCCCCLXXV, &c.

<sup>3</sup> Ibid. MCCCCLXXXVI.

The identity of these symptoms is such in the commencement, that I have known a case considered as asthmatic, which *in a short time*, there was every reason to believe, proved to be dropsy of the thorax; œdematous swelling of the feet and legs, great scarcity and high colour of the urine, &c., appearing in addition to the symptoms indicating an affection of the thorax.

2355. The last reason which shall be offered to show that difficult respiration, and a sense of suffocation soon after falling asleep, are not produced by a collection of serum in the thorax, is, that these symptoms sometimes occur when there is not a drachm of serum in the thorax;<sup>1</sup> and sometimes they do not occur when there is a great quantity in that cavity.<sup>2</sup>

2356. These symptoms (2331) not being caused by a collection of serum in the thorax (2337 to 2355), and existing when the latter does not exist (2355), are no evidence of the existence of such a collection.

2357. It may be observed here, that the proportion of cases of effusion into the cavity of the thorax, or of the pericardium, is very great. In the forty cases stated above (2271 to 2310), there were effusions into these cavities in twenty-six (2312. 2314. 2316).<sup>3</sup>

2358. This is the effect of the situation and course of the veins of the pleura, pericardium, &c. (1366). The pericardiac veins gather their branches from the pericardium, &c., and enter the internal mammary veins, or the superior cava, or the terminations of the right subclavian; the internal mammary veins termi-

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. xvi, art. 11.

<sup>2</sup> Ibid. art. 27. 28.      <sup>3</sup> Cullen's First Lines, &c. MDCCIV.

nate, the left in the left subclavian, the right in the superior vena cava.

The superior intercostal veins also, which enter the subclavian veins, receive branches from the pleura, pericardium, and lungs.<sup>1</sup> There are some other smaller veins which carry blood from the internal surface of the thorax, and from the viscera contained in it, to the subclavian veins, or the superior cava.<sup>2</sup>

2359. Thus the blood of all these veins from the surfaces of the cavity of the thorax, and of the viscera contained therein, passes into the subclavian or superior cava near it, and consequently runs upwards; the effect of which is to retard its course, and favour serous effusion, particularly when a free entrance is denied it into the cava from accumulation of blood in the latter.

2360. There is no greater certainty of ascertaining the existence of serum in the cavity of the cranium, than in that of the thorax (2356). As in hydrothorax the effusion of serum into the cavity of the thorax is not the cause of the symptoms, but one of the effects of the cause which produces the other symptoms; so in that called hydrocephalus, the effusion of serum into the cavity of the cranium is not the cause of the symptoms observed, but one effect of the cause which produces the other symptoms.

2361. The symptoms relied on as evidence of the effusion of serum into the cavity of the cranium are, stupor, enlarged pupils, and blindness, or, excessive sensibility to light, and contracted pupils, with screaming, as if from pain, and convulsions.

<sup>1</sup> Bell's Anatomy, vol. 2, p. 242. <sup>2</sup> Winslow's Anatomy, Sect. V, 55.

2362. These symptoms, however, are all such as an accumulation of blood in the vessels of the head is capable of producing; at the same time that the effusion itself is an effect of such increased fulness.

2363. That accumulation of blood in the vessels of the brain produces these symptoms, has been already shown (1681).

2364. That the same cause is also capable of producing effusion of serum into the cavities in the neighbourhood of the vessels distended, and therefore in this case into the cavity of the cranium, has also been shown (1360, &c. 1690. 2259).

2365. That accumulation of blood in the vessels of the head, sufficient to render them turgid, exists in almost every case in which serous effusion does, appears from the account of the dissection of a great number of bodies in Morgagni's work of the Seats and Causes of Diseases.

2366. A number of these cases have been stated. In some the turgidity of the vessels of the brain is obvious from the circumstances mentioned (1702. 1716. 1720. 1725. 1729. 1730. 1731. 1735). In a great number it is plainly stated (1686. 1687. 1688. 1727. 1728. 1733), and in some was so great as to have produced an effusion of blood as well as water (1712. 1713. 1714. 1715. 1717. 1718. 1719. 1734).

2367. In addition to these, of twenty-five cases of "water within the cranium," referred to by Morgagni in his "Index referring to preternatural appearances in dead bodies," there was an obvious turgidity of the vessels of the brain in fourteen;<sup>1</sup> in two others, though

<sup>1</sup> Morgagni of the Seats and Causes of Diseases, Let. iii, art. 14.



turgidity is not mentioned, it is evinced by redness of the face in one,<sup>1</sup> and extravasation of blood within the cranium in the other;<sup>2</sup> and of the remaining nine, there was a very small quantity in two;<sup>3</sup> thus leaving only seven cases out of twenty-five, of serum within the cranium, in any quantity, unaccompanied by a turgid state of the vessels of the brain. In some of these cases it may also be observed that the principal object of attention was some other part, and there is very slight notice taken of the cranium.

2368. The symptoms of hydrocephalus moreover appear, and the patient sometimes dies, when accumulation of blood in the vessels of the head is discovered, but no effusion. "Dr. Quin has given a dissection of a child that died with all the symptoms of hydrocephalus internus, and yet nothing was discovered in the brain but a slight turgescence of its blood vessels."<sup>4</sup>

2369. Lastly, effusion of serum in great quantity sometimes occurs without the appearance of the symptoms attributed to it (1698 to 1701).<sup>5</sup>

2370. Inasmuch therefore as the symptoms relied on as evidence of the existence of serum in the cavity of the cranium, are effects of increased fulness of the vessels of the brain and its coverings (2363); as this increased fulness is capable of producing effusion of serum into the cavity of the cranium (2364); as in-

Let. iv, art. 4. 13. 19. Let. v, art. 6. Let. vii, art. 4. 9. Let. x, art. 17. 19. Let. xxi, art. 7. 33. Let. xxiv, art. 6. Let. xxv, art. 10. Let. xxxv, art. 16.

<sup>1</sup> Ibid. Let. vi, art. 6.

<sup>2</sup> Ibid. Let. xi, art. 2.

<sup>3</sup> Ibid. Let. iv, art. 28. Let. xxxi, art. 2.

<sup>4</sup> Rush's Works, Vol. 3, p. 58.

<sup>5</sup> See also Morgagni of the Seats and Causes of Diseases, Let. iv, art. 35. 36.

creased fulness of the vessels of the brain is present in those cases in which serum is found (2365 to 2367); as in some cases the symptoms appear when dissection shows that increased fulness of the vessels, but no serous effusion is present (2363); and as effusion of serum sometimes exists without the appearance of the symptoms (2369); it is evident that increased fulness is the cause of the symptoms in question, and serous effusion is one of its effects.

2371. It is evident therefore that these symptoms indicate increased fulness of the vessels of the head (2363. 2368), but not serous effusion into the cavity of the cranium (2368).

2372. It appears therefore that the symptoms supposed to indicate a collection of serum in the thorax and cranium, are not to be relied on for that purpose. As, however, the cause operates upon all the cavities, in consequence of which it is rare to find effusion in one cavity alone (2323. 2333); and as the proper method of cure in all diseases consists in removing the cause, that the effects may cease; it is not essential to decide the question with respect to any particular cavity, but only to ascertain the fact that the disease exists in any one of all.

2373. This cause we have seen is accumulation of blood in the venous cavity (2259 to 2265. 2324 to 2327. 2337 to 2345. 2370).

2374. This is confirmed by the dissection of those who have died with a collection of serum in one or more cavities (2326. 2368).

2375. In the thirty-five cases already quoted from Morgagni (2271 to 2308), there are marks of an accu-

mulation of blood in the vessels of the viscera of the head, the thorax, and the abdomen. In some the abdominal viscera were chiefly affected; in others the affection was general.

2376. The liver, or spleen, or both, were hard or enlarged, or both hard and enlarged, in fifteen cases (2271. 2274. 2275. 2283. 2284. 2292. 2293. 2294. 2296. 2297. 2299. 2301. 2305. 2306. 2307).

2377. In many others, in some of which the liver, or spleen, or both, were likewise affected, the vessels of the viscera of the head and the thorax were much distended with blood.

2378. In the case mentioned at 2272, the liver was enlarged and hard, the spleen hard; the small vessels of the brain were turgid, particularly those that ran in the pia mater.

2379. In the case at 2273, the internal jugular veins were much distended with blood; "the vessels, in like manner, of the cerebrum and cerebellum, which ran upon the surface, and those also that lie upon the corpus callosum, were found more turgid than usual," &c. The spleen was larger and softer than it ought to be.

2380. In the case at 2276, the liver was hard, the upper part of the upper lobe of the right side was entirely black from the quantity of blood included in its vessels.

2381. In that at 2277, the liver was hard, the superior lobe of the lungs was black and hard, the small vessels of the pericardium were turgid with blood; and the vessels of the pia mater were so distended with blood, that the smallest branches were distinctly conspicuous.

2382. In that at 2278, the liver both in colour and firmness "was somewhat beyond the bounds of nature;" the lungs were of a purple colour, "degenerating into black;" the heart was very lax.

2383. In that at 2279, the liver was hard, the spleen large and turgid, "and had almost the consistence of a poultice;" "the vessels which creep through the parietes of the lateral ventricles (of the brain) were turgid with blood."

2384. In that at 2281, the liver was hard, the spleen thicker than it ought to be, the vessels of the pia mater distended with blood, but not greatly.

2385. In that at 2282, the liver was large, the lungs were hard, and had black spots on them.

2386. In that at 2285, the face was turgid and livid, the liver was hard, the spleen hard and large.

2387. In that at 2286, the right lobe of the lungs resembled the substance of the liver, the vessels of the pia mater were somewhat turgid, the liver somewhat hard, and livid, and the spleen very loose in its structure.

2388. In that at 2287, the lungs were dense, somewhat hard, and in several places of a blackish colour; the liver was the largest Morgagni had ever seen until then, and hard, the gall bladder contained bile almost black, the spleen was large.

2389. In that at 2288, the right lobe of the lungs was enlarged, heavy, and universally hard, the left was a little harder and redder than usual, with a mixture of black, the greater part of the vessels of the pia mater were turgid with blood, the spleen was not a little larger than usual, and the liver was large.

2390. In that at 2289, the lower part of the lungs on the right side was hard and turgid, of a brown colour inclining to purple, the ventricles of the heart, particularly *the right ventricle*, were dilated, and contained a great quantity of black blood, "the liver was hard, externally livid, and pale," &c.

2391. In that at 2290, the lungs were hard, dense, and heavy, the spleen was very black, the liver was very large.

2392. In that at 2291, the heart was very large, the coronary vessels were likewise very large, the right auricle was very much dilated, they were all full of black blood, almost fluid; the liver and spleen were hard.

2393. In that at 2298, the liver was immoderately large, and harder than usual; the spleen twice as large as natural in every direction: in the thorax the lungs were hard; and two veins which ran longitudinally on the posterior surface of the heart, were turgid with blood, and in a manner varicose: the head was not opened.

2394. In that at 2300, the liver was hard, the spleen enlarged, the lungs hard, and adhering to the diaphragm and mediastinum.

2395. In that at 2302, the face and shoulders were very livid, the stomach, intestines, and mesentery were black, the liver was hard, the spleen large, the lungs turgid and blackish: the head was not opened.

2396. In that at 2304, the lungs were turgid, and closely connected with the pleura, and in some parts hard; the pericardium thickened and reddish; the heart was larger than usual, and contained black blood



on both sides: the medullary substance of the cerebrum, wherever it was cut into, and the surface of the lateral ventricles also, showed small vessels turgid with blood: the spleen was large, the liver very large.

2397. In that at 2308, the liver was hard, and the lungs variegated with large black spots, both internally and externally.

2398. A case is stated in Maclean on Hydrothorax, in which there was found in the left cavity of the thorax about a pint and a quarter of serum, and in the pericardium more than two ounces.

“The right sinus venosus and cavity of the auricle were unusually large, and the latter as well as the right ventricle, formed one continued cavity; the auricular opening being nearly as large as either cavity, the functions of the tricuspid valves having been thereby apparently destroyed. The opening into the pulmonary artery likewise, as well as the trunk of the artery itself, seemed preternaturally large, and the coat of the vessel was thin.”<sup>1</sup>

Here are the strongest marks of long continued and excessive distension of the cava, the right auricle, and pulmonary artery, accompanied by a “pulse small and frequent, without any regular strokes.”<sup>2</sup>

The symptoms, effects of accumulation of blood in the cava, &c., corresponded in degree with the cause; viz. pain and distressing sense of weight across the chest, especially about the middle of the sternum; severe cough, sometimes without and at others with expectoration; extremely laborious respiration; inability

<sup>1</sup> Maclean's Inquiry into the nature, causes, and cure of hydrothorax, Appendix, p. 49.

<sup>2</sup> Ibid. p. 47.

ty to lie down; the upper part of the trunk and the head generally covered with profuse perspiration, while the extremities were cold; the urine scanty, high coloured and thick; the appetite various.<sup>1</sup>

2399. These cases are sufficient to show that there is in dropsy a preternatural quantity of blood in the vessels of the viscera of the head, the thorax, and the abdomen. It is to be remembered that the attention of Morgagni was directed to various appearances, as ossification, &c., and not to fulness of the vessels of the parts; whence it is evident that the latter must have been striking, to have attracted his notice, particularly as he apparently had no theory connected with these appearances. It is also to be observed that he frequently examined only one or two cavities.

2400. The effect of an accumulation of blood in a part, in producing dropsy, is shown by the frequent occurrence of the latter in patients who have died of peripneumonia.<sup>2</sup> Here the accumulation constituting the inflammation of the lungs, produces an effusion of serum into the cavity of the thorax. I have frequently seen such an effusion occur in external parts of the body. It happens sometimes in ophthalmia: the effusion in this case is into the eyelids.

2401. The doctrine (2373) is likewise confirmed by the effect of spontaneous evacuations from the venous cavity.

2402. A man about thirty years of age, very intemperate, without appetite, with intellect confused, and

<sup>1</sup> Maclean's Inquiry into the nature, causes, and cure of hydrothorax, Appendix, p. 47.

<sup>2</sup> Morgagni of the Seats and Causes of Diseases, Let. xxi, art. 7. Let. xxii, art. 22.

apparently universally dropsical, began to bleed at the nose, after a short time vomited black blood, and finally discharged black blood from the bowels for several days together.

He was, immediately after this discharge, very greatly improved in complexion, was stronger, and his dropsical swelling disappeared. The relief was however temporary only; for, returning to his habit of drinking, his disease soon returned in full force.

2403. Similar cases are recorded by medical writers. It is stated "in the writings of Hildanus, that a young man was cured of a general anasarca by a hemorrhage from the nose, that amounted to four pounds, and Grapengiesser informs us that he has seen great relief arise from copious epistaxis."<sup>1</sup>

2404. This doctrine is also confirmed by the effect of artificial evacuations from the venous cavity; as will appear from the following cases.

### *Treatment of Dropsy.*

2405. Dropsy being a general disease, the effect of a cause operating on the vessels of all the cavities, and producing in the majority of cases effusion into several of them (2323), it is obvious that the proper remedy, viz. that which will remove the cause, must be equally adapted to the cure of all the forms. The truth of this I have experienced in practice for many years: dropsy of any or of all the cavities is successfully treated by such remedies as operate on the bowels in such a manner as to produce consistent dischar-

<sup>1</sup> Prize essay on Dropsy, by James Conquest Cross, M. D. of Fayette county, Kentucky. Medical Recorder, No. 39, p. 8.

ges; such as are commonly called bilious passages, and such as have been repeatedly mentioned in the preceding pages, as evacuating from the venous cavity.

2406. I had for many years used with partial success, digitalis, and other remedies considered as diuretics, but finally settled down on squills and calomel, as the most efficacious diuretic of all that had ever been recommended. As such it is still spoken of by writers who treat of the *Materia Medica*. This prescription proved very effectual in my hands in every form of dropsy, for many years together. Anasarca, ascites, hydrothorax, were all treated alike, and very generally with success. Reflecting on this subject, after the above stated view of the nature of this disease was entertained, I recollected that the operation, in some cases that could still be called to mind, had been precisely that of a cathartic; insomuch that in a very obstinate case of constipation in fever, the prescription had been successfully employed as a cathartic.

2407. The first case in which the mercurial cathartic pills were used, was a case of ascites. The calomel and squills were first used, and the effect observed particularly. They operated on the bowels; the discharges were precisely such as are usually produced by pills of jalap, aloes, and calomel. After a day or two, the latter were used and continued until the disease was entirely removed; which was in a short time. The patient was young, and the disease has never returned. This was above five years ago.

2408. This was considered, as it is, a strong confirmation of the truth of the doctrine; it being evident that the medicine used as a diuretic had produced its

good effects by purging the patient. In consequence of this, it was determined to make a full trial of the pills of jalap, aloes, and calomel in the treatment of anasarca, ascites, and hydrothorax. The success of the practice was such in the first cases, as to hold out a strong inducement to continue it; and from that time no other medicine has been used except rhubarb occasionally instead of jalap in forming the pills; and no other remedy except bleeding whenever the pulse was strong enough to require it. The following cases show the effect of this mode of treating dropsies, even in the most unfavourable circumstances.

2409. A very large black woman had been dropsical for many years: she was an excessive eater; and was exposed to great irregularities in this and other respects. She had ascites and anasarca, and was excessively swelled.

2410. She was bled, and took jalap and calomel in large doses; and thereby discharged a great quantity of green bilious matter. This course in a few days reduced the swelling almost to nothing; and gave her a keen appetite. This she indulged to excess, and neglecting medicine, soon became as large as ever. She, in these circumstances, to use her own expression, first felt bilious; and soon began to swell. This was the course she went through repeatedly. As she gave me a great deal of trouble, I determined to make some experiments on her; to which she had no objection.

2411. In one instance the swelling was carried off entirely, or at least so much so as not to be observed, by pills of aloes alone. She took about forty grains every day for a week or more.



2412. In another instance, I determined to try calomel and bleeding alone. The pulse was moderate ; the view entertained being that the vena cava, &c. were distended with blood, the plan was to give a large dose of calomel every morning until the action of the heart should be excited, and then to draw off from an orifice in the arm, the blood which was thus forced into circulation. The calomel at the same time was expected to contribute to relieve by evacuations from the liver.

2413. I saw her swallow forty grains of calomel every morning for a week. The medicine operated several times every day : the discharges were consistent and bilious. On the third morning, the pulse was so considerable that I took from her arm forty-four ounces of blood ; and near as much every morning for two or three days. In the second week she was completely relieved of every appearance of swelling of the limbs or abdomen, and declared that she was as small as when she was a girl.

2414. Recovering her health, and voracious appetite, and exposed as much as ever to great vicissitudes as regards provision and the comfort of fire, she after a time swelled again ; and continued thus to conduct herself as long as she lived. When she died I wished very much to examine the body ; but the difficulties were at the moment such that the opportunity was allowed to pass by ; and I have regretted it ever since. It was obvious to the sight that the jugular veins were excessively distended, before as well as after death ; and consequently that the whole venous cavity was very full of blood.

2415. An intemperate young man had symptoms which strongly indicated hydrothorax.

He was bled repeatedly, and used the pills of jalap, &c. The discharges were consistent, and dark. He was greatly relieved in a few days; insomuch as to neglect his medicine and indulge himself improperly. The symptoms became worse: he was relieved again and again. He finally became sensible of the necessity of being more attentive, and went to his brother's house with the determination to pay regular attention to the directions given him. There he was not attended to; he even suffered extremely for want of proper nourishment, and from cold in the night in extremely cold weather. This he did not mention until it was too late to benefit him much by a change of treatment in these respects. He even declined taking medicine, alleging it was useless under the circumstances mentioned. He was towards the last affected with convulsion, blindness, and delirium, strongly showing a great accumulation of blood in the vessels of the head; while the extreme paleness and weak pulse showed the same in the venous cavity generally (1219).

2416. A mulatto woman about twenty-five years of age, of large frame, had a difficulty of respiration for a long time without any anasarcaous swelling of the feet and legs: the paroxysms were sometimes so great that she appeared likely to suffocate, and at those times the pulse was so rapid and feeble, as to make it difficult to count the pulsations.

She took the pills of jalap, aloes and calomel, and of rhubarb, aloes, and calomel; chiefly the latter: The passages were consistent and dark. The re-

lief was marked. As soon as her health improved, she became inattentive to the directions given her; neglecting her medicine, and exposing herself to cold. She was again and again relieved, so much as to induce her to think it unnecessary to take medicine any longer; and as often exposed herself and relapsed. She sometimes took scarcely a dose for a month. Finding it useless to attempt to induce her to be more attentive, she was given up to her fate. When she died, the body was minutely examined, excepting the head. There was no hardness or enlargement of the liver or spleen; the interior veins were very full; and there was water in the thorax, pericardium, and abdomen: in the first, the quantity was estimated to be four ounces; in the second, eight; in the third, two pounds.

2417. A woman of thirty-five or forty years of age, had had a difficulty of respiration from her youth; she had a cough; had had no menstrual discharge for a year; had a good appetite; was costive; her countenance was swollen, her cheeks livid; she had formerly had headach; now bad pain in the back; she was anasarcaous, and had ascites; and these symptoms with the extreme difficulty of respiration, strongly indicated that there was a collection of water in the thorax also.

She had been thus situated a considerable length of time, and it was the general impression that she was near death.

2418. The pulse was somewhat strong during a part of the day, and she was bled. She afterwards took pills of jalap, aloes, and calomel, every day, in sufficient quantity to operate on the bowels several times. The discharges were dark coloured. She required

large doses throughout the treatment, very commonly being under the necessity of taking two dozen in the day.

2419. She continued this course for several weeks without the least variation as to the end in view, and without any as to the means of attaining it, except the omission of the calomel after some time lest she should be salivated. During this time she continually improved in general appearance, the swelling of the abdomen and limbs rapidly disappearing, the difficulty of breathing daily lessening, the countenance becoming more and more animated, the complexion improving, until she had lost all appearance of disease, except a very slight difficulty of respiration; the sole symptom which she at all regarded, being the continued absence of the menstrual discharge. Her appetite being good she indulged freely in eating, and her strength was so increased, that she again engaged in the management of her family concerns.

2420. In this situation, every effort was made to induce her to continue the use of the medicine in such quantity as to keep down that accumulation which had caused her disease. It had been rendered evident, that she could not only bear two or three daily evacuations from the bowels, but that she had been raised by them from the lowest state of debility. It was moreover obvious that they were still necessary, because the natural vent for the continually recurring venous plethora peculiar to women (1389), was not yet reestablished; and it was therefore certain, that if a substituted discharge should not be kept up until the natural one should appear, that the effects of accumula-

tion would return ; and the more readily because, in consequence of improved appetite, she was likely to add to the evil.

2421. She however peremptorily refused ; saying that she was well, and there was no need of any thing more. In order however, to restore the menstrual discharge, she made use, by the advice of some neighbour, of an infusion of centaury. She did not attain her object, but began to feel worse ; in no long time the swelling reappeared, and step by step she measured back the ground to her former unhappy situation.

In this state she applied to a gentleman who endeavoured to relieve her by the use of hydragogue cathartics ; crem. tartar, gamboge, &c. but without any good effect. He gave up the case, and she became worse and worse, and soon died.

2422. We have seen that the assemblage of symptoms which has acquired the name of hydrocephalus, is not (as the name imports) produced by a collection of serum in the head (2368), but that they are all effects of an accumulation of blood in the vessels of the brain, and that the collection of serum itself, when it exists, is also an effect of the same cause (2360 to 2371) ; which in many cases never takes place, the child dying from the violence of the disease before this effect is produced (2368). This disease ought therefore not to be called by the name it bears. It is most frequent in seasons in which miasmatic fevers prevail ; it is in truth no other than a fever produced generally by miasmata, sometimes perhaps by other remote causes, with a greater afflection of the head than of any



other of those parts influenced by accumulation of blood in the vena cava and its branches, but always with more or less affection of the remainder of those parts. We shall therefore postpone the further consideration of this disease at present, and arrange it among the febrile diseases.

## CHAPTER XXXIV.

### OF DIABETES.

2423. Cullen defines diabetes in the following words; "*Urinæ plerumque preternaturalis, copia immodica, profusio chronica.*"<sup>1</sup>

2424. The urine in these cases is very often sweet. This however is not an essential symptom; because it is frequently not present.

2425. Cullen says the urine is very generally found to be more or less sweet; but that he thinks he has seen a case in which it was perfectly insipid, "and it would seem (he continues) that a like observation had occurred to Dr. Martin Lister."<sup>2</sup>

2426. Heberden's testimony on this subject very strongly shows that this taste is not essential. He says, "The urine in a diabetes is said to have a honey-like sweetness; but in my judgment formed upon the most perfect cases of this distemper, it ought in most cases rather to be called insipid."<sup>3</sup>

2427. It is to be observed that although the excessive discharge of urine has attracted the attention of physicians so strongly, that the disease has been con-

1 Cullen Synop. Nosol. Method. Tom. II. p. 244. A chronic discharge of urine, for the most part preternatural, in immoderate quantity.

2 Cullen's First Lines, &c. MDVI. MDVII.

3 Heberden's Commentaries, p. 114.

sidered as consisting in it;<sup>1</sup> there are however other symptoms always present, which must be taken into consideration in investigating the pathology of the disease.

2428. There is occasional headach,<sup>2</sup> sometimes frequent and violent<sup>3</sup>. The appetite sometimes fails,<sup>4</sup> is often variable, but frequently voracious. The patient is almost in every case very thirsty, and there is a clamminess in the mouth.<sup>5</sup> There is frequent nausea, and vomiting,<sup>6</sup> sometimes for months before the discharge of urine becomes so great as to be remarked.<sup>7</sup> The contents of the stomach frequently become acid.<sup>8</sup> The tongue is whitish and moist,<sup>9</sup> and sometimes foul.<sup>9</sup>

The patient has sometimes attacks of nausea and griping, with vomiting and purging; green matter is discharged from the stomach;<sup>10</sup> and the passages are sometimes green and sometimes black and offensive.<sup>11</sup> The bowels are frequently costive,<sup>12</sup> and the patient is sometimes troubled with the piles.<sup>13</sup>

Besides the increased discharge of urine, other symptoms indicate disorder of the kidneys. There is a disagreeable sensation, sometimes amounting to pain in the loins, and in one case mentioned by Dr. Rollo, a constant pain in the region of both kidneys with fulness and tenderness to the touch on the right side, retraction of the testicle, with a weakness, sense of coldness, and at night an œdematous swelling of the

1 See Cullen's First Lines &c. MDIV.

2 Rollo on Diabetes, p. 19. 3 Ib. p. 65.

4 Heberden's Commentaries, p. 114.

5 Rollo &c. p. 3. 18. 63. 64. 6 Ib. p. 18. 7 Ib. p. 22.

8 Ib. p. 18. 9 Ib. p. 63. 10 Ib. p. 32. 11 Ib. p. 18. 19. 84.

12 Ib. p. 18. 63. 13 Ib. p. 65.

leg of that side ; and also pain and tenderness of the great toe.<sup>1</sup>

2429. All these symptoms indicate the presence of a cause operating on the head, stomach, liver, and kidneys at the same time ; and are such as accumulation of blood in the vena cava and its branches in those parts, is capable of producing ; while the presence of this cause is shown by the weak and feeble pulse observed in this disease (1219).

Accumulation of blood in the interior veins is therefore the proximate cause of this disease.

2430. This conclusion is confirmed by observing that the remote causes, as far as they have been ascertained, viz. high living, excessive use of wine and spirit, severe service in camp, excessive labour and poor fare, are all such as cannot fail, when long continued, to produce weakened action of the heart, and consequent accumulation of blood in the vena cava, and its branches.

2431. That other remote causes which produce the same effect are remote causes of diabetes, is evident from the circumstance of this disease appearing sometimes in connexion with the symptoms of fever, whence it is evidently one of the effects of the remote causes of fever, all of which weaken the action of the heart.

2432. That this affection of the kidneys is sometimes observed in company with the symptoms of fever, appears from a passage in Cullen. He says, "*in simili senis, post diuturnam febrem, diabete, urinam omnino dulcem inveni.*"<sup>2</sup>

<sup>1</sup> Rollo on Diabetes, p. 18.

<sup>2</sup> Cullen, Synop. Nosol Method. Tom. II. p. 245, nota. In a similar diabetes after a long continued fever in an old man, I have found the urine altogether sweet.

Dr. Heberden mentions a similar occurrence ; and Dr. Rollo another.<sup>1</sup>

2433. It appears therefore that the ascertained remote causes of this disease, are such as produce weakened action of the heart, and that this effect is observed to be present ; and that the symptoms observed in different parts, are the effects of the consequent accumulation of blood in the vena cava, and in its branches situated in those parts.

2434. This conclusion is confirmed by some facts collected here and there from Rollo.

It is repeatedly stated that emetics produced the most remarkable and immediate benefit.<sup>2</sup> In one instance the quantity of urine was reduced in twenty-four hours from ten pints in the day to three.<sup>3</sup> The obvious effect of an emetic is to increase the action of the heart, raise the pulse, and send the blood to the surface, and consequently to lessen the accumulation in the interior veins.

2435. There are also some facts incidentally stated by Dr. Rollo, which show that a discharge from the liver, and consequently from the vena cava, &c. is beneficial. Thus in the case first stated, the patient took every day aloetic pills, or sulphur, or castor oil, and was also directed to take half a pint of lime-water morning and night, which is itself a laxative: this patient recovered in a few months. In another case, in which laxatives were not given, the quantity of urine voided daily was only reduced in seven or eight weeks, from eight pounds to five or six.<sup>4</sup>

1 Heberden's Commentaries, p. 114. Rollo on Diabetes, p. 158.

2 Rollo on Diabetes, p. 66.

3 Ibid. p. 72, 73, 74, compared: also p. 207, 208.

4 Ibid. p. 161. to 167.



2436. In one case the patient took an ounce of castor oil and as much compound tincture of senna, and was to repeat it whenever costive; he also took every day, a pint of alum whey, and eight pills of rust of iron and kino in equal quantities, made into a mass with extract of chamomile. In this course he persevered nearly six weeks: the quantity of urine diminished daily, and fell during that time from twenty-eight pounds to eight or ten in a day.<sup>1</sup> Dr. Rollo's method of treatment was then adopted; but in seven or eight weeks, during which it is mentioned once that he took oil, the daily quantity of urine was only reduced from eight to six pounds.<sup>2</sup> During this time however, he had for three days several loose stools every day, and the quantity of urine was reduced from six to three pounds daily on the two first days, and on the last, when the discharges from the bowels were checked with opium, to three and a half pounds.<sup>3</sup> The looseness being checked, the quantity of urine gradually rose to six pounds again.<sup>4</sup>

2437. In another case, the patient had "three stools, was sick, and vomited after supper." That day he had discharged twenty-one pounds of urine, but on the next day he voided only nine pounds.<sup>5</sup> There were however some instances in which the urine was not materially lessened by a free passage or two.

2438. With these views of the nature of this disease, I shall embrace the first opportunity to attempt the cure by such medicines as evacuate from the liver; and as the pills of rhubarb, aloes and calomel are best adapted to the end in view, I shall give them a fair trial.

<sup>1</sup> Rollo on Diabetes, p. 159, 161.

<sup>2</sup> lb. p. 161. 166. <sup>3</sup> lb. p. 165. <sup>4</sup> lb. p. 166. <sup>5</sup> lb. p. 170.

## CHAPTER XXXV.

### OF ASTHMA.

2439. Asthma is defined to be a difficulty of breathing coming on at intervals, generally in the night-time, and obliging the patient to rise if lying down, together with a sense or feeling of want of room in the chest, and a wheezing noise both in inspiration and expiration; sometimes attended by a difficult cough at the beginning of the paroxysm, which, towards the end of it, becomes free with a discharge of mucus often copious.<sup>1</sup>

2440. The nature of this disease, and particularly the proximate cause of the symptoms observed, have been a subject of controversy among physicians. It is produced by certain remote causes, in persons who have no predisposition to it, arising out of morbid structure either accidental or hereditary; and it is necessary to investigate the manner in which these causes act on the system, in order to understand the nature of that internal state which produces the symptoms observed.

2441. Cold is stated by both Whytt and Cullen to be a remote cause of this disease.<sup>2</sup> This seems to be

<sup>1</sup> Cullen Synop Nosologiæ Method.

Also, his First Lines &c. MCCCLXXV.

<sup>2</sup> Cullen's First Lines &c. MCCCLXXXII.

Whytt on the Nerves, p. 255.

doubted by Dr. Bree, on the ground that although the East and Northeast winds tend to produce a paroxysm, frosty air does not.<sup>1</sup> It is however to be observed, that in the moist state of the air during the prevalence of those winds, the temperature of the body is reduced much more rapidly than in the dry air of a frosty day; because moist air is a better conductor of heat than dry air. The effect is evinced by the greater paleness, not only of asthmatic persons, but of those in health, in the former than in the latter state of the atmosphere. Dr. Bree himself mentions several instances of cold's producing paroxysms of asthma.<sup>2</sup>

A near relative of mine, when quite young, was passing with a friend from one island to another in an open boat, when a very heavy rain fell. His friend was asthmatic; and in order to save him, he covered him with his cloak and umbrella, and exposed himself so as to become very wet. In this situation he was compelled to remain some hours, and suffered in consequence of it, an attack of the disease himself. Having recovered a good state of health, he was some years afterwards again exposed to a very heavy rain while travelling, and experienced a return of the disease, which harassed him all the remaining part of his life. Dr. Bree mentions a similar case.<sup>3</sup>

2112. Violent passions, as anger, love, grief, terror, and also severe study, increase the predisposition, in other words tend to produce asthma, and are therefore remote causes.<sup>4</sup> Whytt says fear is capable of producing an attack of this disease.<sup>5</sup>

1 Bree on Disordered Respiration, p. 157.

2 Ibid. p. 75. 243. 263. 296.

3 Ibid. p. 295.

4 Ibid. p. 167.

5 Whytt on the Nerves, p. 254.

2443. High living, and drinking freely of spirituous liquors, are also remote causes of asthma.<sup>1</sup>

2444. Excessive loss of blood is another remote cause of this disease, as well as severe purging: likewise want of food, or fasting.<sup>2</sup>

2445. Dr. Bree says, "the Aerial Carbonic Acid is an exciting cause recorded by Sir J. Floyer. I have known the inspiring of the vapour of fermenting substances in brewing, to be followed immediately by the paroxysm."<sup>3</sup>

2446. There is likewise reason to believe that miasmata are a remote cause of this disease. The same author says "he has seen in August and September more serious paroxysms than in any other months."<sup>4</sup>

I have seen in the access of autumnal fever most alarming paroxysms of difficult breathing, not differing in any perceptible circumstance from a fit of asthma; and returning periodically at the access of every paroxysm of fever. A friend stated to me a case in which after the fever had passed away, paroxysms of difficult breathing appeared periodically, which the attending physician called asthma. The blood of asthmatic people is black.<sup>5</sup>

2447. All these causes, we have heretofore seen (chap. II. III), are capable of reducing the action of the heart; and the actual production of this effect is evinced by the weakness of the pulse, sometimes to such a degree as to be indistinct,<sup>6</sup> and by the extreme

1 Bree on Disordered Respiration, p. 169. 321.

2 Ibid. p. 161. 162. 163. 217. Whytt on the Nerves, p. 255. Cullen's First Lines &c. MCCCXC.

3 Bree on Disordered Respiration, p. 166.

4 Ibid. p. 159. 5 Ibid. p. 126. 6 Ibid. p. 75. 128. 144.

paleness of the countenance and coldness of the extremities observed in most cases of this disease.<sup>1</sup>

2448. The inevitable consequence of weakened action of the heart, being an accumulation of blood in the interior veins (1218), the latter must therefore be one of the series of causes which produce asthma.

2449. This link of the chain is also the immediate effect of some of the well known remote causes of this disease. Darwin mentions a young man who was affected with asthma on the retrocession or ceasing of eruptions on his face; and a lady who had a small sore a little below the knee, which had for fourteen years been discharging a pellucid fluid, and who was affected with asthmatic breathing and anasarca in consequence of having had the sore healed.<sup>2</sup>

Dr. Bree also mentions repelled eruptions, and suppression of the hemorrhoidal and menstrual discharges, as causes of paroxysms of asthma.<sup>3</sup>

2450. It is evident that the causes first mentioned (2441 to 2446) produce an accumulation of blood in the vena cava and its branches, by weakening the action of the heart (2447); and that those last mentioned (2449) produce directly the same state of things (1250, &c.).

2451. This accumulation is therefore the effect of all the causes of asthma, and consequently must exist in the paroxysms of that disease. We have already seen that it is capable of producing a difficulty of breathing (1296 to 1302), which frequently comes on a short time after falling asleep (2331. 2338), and is sometimes so

1 Bree on Disordered Respiration p. 126. 141.

Darwin's Zoonomia, 3. 1. 1. 10.

2 Darwin's Zoonomia, 3. 1. 1. 10.

3 Bree, &c. p. 35. 164. 139.



great as to threaten suffocation ; and that it is likewise capable of producing a cough and increased secretion of the fluid, which lubricates the internal surface of the bronchi and their branches (1366 to 1368).

2452. We find then that the remote causes of asthma produce weakened action of the heart, and consequently an accumulation of blood in the interior veins, and that the symptoms mentioned in the definition of that disease (2439) are effects of this cause.

This is confirmed by several considerations.

2453. It is confirmed by the presence of various symptoms besides those stated in the definition, all of which are effects of accumulation of blood in the vena cava and its branches.

2454. The patient is affected with dyspepsia, sometimes for months or years before the difficulty of breathing appears ; and when the latter comes on, there is always an aggravation of the dyspeptic symptoms, viz. flatulence, producing distension of the stomach and bowels and eructations, and a discharge of insipid or sour water.<sup>1</sup>

Dr. Bree says, "this dyspeptic state of the stomach is so prevalent in a great majority of cases, that it is difficult to separate it, as a predisposition or symptom of the disease, in considering all. We may justly call it the cause of one species, but it will be found that none is clearly unconnected with flatulence, which, without any certain exception, makes part of the paroxysm, or precedes it."<sup>2</sup>

<sup>1</sup> Bree on Disordered Respiration, p. 27. 45. 138. 141.  
Cullen's First Lines &c. MCCCCLXXVIII. MCCCXCI.

<sup>2</sup> Bree on Disordered Respiration, p. 141.

2455. There is also a heavy pain over the forehead and eyes, with great drowsiness,<sup>1</sup> amounting to lethargy, and in bad cases even to apoplexy.<sup>2</sup>

2456. The liver is in a disordered state, the bile being sometimes abundant, and sometimes deficient. In some cases the patient is costive and troubled with hemorrhoidal tumours, and in others a costive state with clay-coloured passages, yellowness of the eyes and high coloured urine, alternate with nausea and bilious diarrhœa.<sup>3</sup>

2457. Dropsical effusions into the different cavities very commonly appear in those who are affected with asthma.<sup>4</sup> Dr. Bree mentions anasarca and ascites as following asthma, and speaks of the intercurrence of the symptoms, and the changes of one disease into the other;<sup>5</sup> and Cullen says it often ends in hydrothorax.<sup>6</sup>

2458. Nephritic affections also frequently harass patients in asthma.<sup>7</sup> The close connexion between nephritis and dyspepsia, the appearance of the symptoms of both in the same patient, the one and the other being alternately most severe, and giving name to the disease, have been already shown (1864).

Besides those symptoms commonly called nephritic affections (1851), asthmatic persons are subject to a copious and frequent discharge of urine at the commencement of the paroxysm and during the course of it.<sup>8</sup> In one case it is mentioned that the "water was always deep red, or coffee-coloured preceding a paroxysm."<sup>9</sup>

1 Bree on Disordered Respiration, p. 45. 108. 118.

2 Ibid. p. 108. 3 Ibid. p. 27. 138. 309. 311. 312.

4 Ibid. p. 144. 5 Ibid. p. 108. 141.

6 Cullen's First Lines &c. MCCCCLXXXVI.

7 Bree &c. p. 307. 308. 8 Ibid. p. 46. 9 Ibid. p. 307.

The chronic profuse discharge from the kidneys, called diabetes, sometimes appears in asthmatic people.<sup>1</sup>

2459. The inference (2452) is confirmed also by observing that whatever is injurious in dyspepsia is injurious in asthma; that is, that the same remote causes increase or produce both, and consequently the same internal state exists in both.<sup>2</sup>

2460. It is confirmed by the appearance of asthma in company with hysteria, hypochondria, dyspepsia and atonic gout.<sup>3</sup> The symptoms of the former and those of the latter appearing in company, as effects of the same remote causes and the same internal change (2459), and the latter being effects of accumulation of blood in the vena cava and its branches, the former must be so likewise.

2461. It is confirmed by the appearance of asthma on the retrocession of the gout; <sup>4</sup> that is on the retiring of the blood from the external surface to the interior veins (1887), &c.).

2462. It is confirmed by the converse of this; viz. the relief experienced by asthmatic patients on the appearance of a gouty swelling of the great toe.<sup>5</sup>

2463. It is confirmed by the relief experienced by asthmatic patients from the eruption of small tumours appearing externally.<sup>6</sup>

1 Bree on Disordered Respiration, p. 140. 192. 219.

2 Ibid. p. 167. 169.

3 Ibid. p. 36. 138. 310. Cullen's First Lines &c. MCCCCLXXXIII.

4 Bree on Disordered Respiration, p. 36.

Whytt on the Nerves, p. 254.

5 Whytt on the Nerves, p. 254.

6 Bree on Disordered Respiration, p. 36. 269.

2464. It is confirmed by the recurrence of asthma at every menstrual period, in a case mentioned by Dr. Wainwright;<sup>1</sup> that is, at the time of the greatest periodical accumulation of blood in the vena cava and its branches (1389, &c.); also by the paroxysms of asthma becoming more severe on the cessation of the menstrual discharge in women about forty-five years of age.<sup>2</sup>

It is confirmed likewise by the recurrence of paroxysms of asthma immediately preceding every return of a profuse menstrual discharge, which took place every three months in a lady of forty-five years of age;<sup>3</sup> in which case it is obvious that the paroxysm occurred at the time of the greatest accumulation; as well as by the fact that the "discharge from the uterine vessels terminated every paroxysm."<sup>4</sup>

2465. It is confirmed likewise by the relief obtained by the restoration of a suspended hemorrhoidal, as well as menstrual, discharge.<sup>5</sup>

2466. That the symptoms observed in asthma are effects of an accumulation of blood in the vena cava and its branches (2452), is further shown by the effects of some remedies. An emetic administered on the approach of a paroxysm of asthma has frequently prevented it.<sup>6</sup> The patient in such circumstances is in the same state as in the cold stage of an intermittent<sup>7</sup> (2447); and the same remedy is as effectual in preventing the paroxysm of the latter, as that of the for-

<sup>1</sup> Bree on Disordered Respiration, p. 195.

<sup>2</sup> Ibid. p. 309.    <sup>3</sup> Ibid. p. 310.    <sup>4</sup> Ibid. p. 311.    <sup>5</sup> Ibid. p. 164.

<sup>6</sup> Cullen's First Lines &c. MCCCXCI.

<sup>7</sup> Darwin's Zoonomia, 3. 1. 1. 10.

mer. In both cases the blood is accumulated in the interior veins, in consequence of the weak action of the heart (1218); and the effect of the operation of the emetic is to drive towards the surface the blood accumulated within, and thus arrest the progress of the paroxysm.

2467. The effect of an opiate in the same stage of the disease is similar: taken at the approach of the paroxysm, it has considerably lessened its violence or has wholly suppressed it.<sup>1</sup> The same result is familiar to most physicians on giving an opiate on the approach of an intermittent fever. The effect is obvious: the action of the heart in both cases, is excited so as to enable it to carry forward the blood, and arrest the progress of the paroxysm.

2468. Dr. Bree's experience respecting the size of the dose of opium corresponds entirely with this view of its effect in asthma. He speaks of opium and ether being very useful in this disease, in small doses;<sup>2</sup> and mentions a remarkable instance of the bad effects of a large dose, which confirms in a striking manner the doctrine here advocated.

2469. He says, "in the access of a paroxysm of the first species" (viz. that in which there is an effusion of serum into the cells of the lungs) "R. B. took four grains of solid opium, which produced nearly an apoplectic stupor for two days. After a few hours the most debilitating sickness came on, with incessant efforts to puke. The labour of the respiratory muscles

1 Dr. Rotheram's note to par. MCCCXCVII of Cullen's First Lines &c.

2 Bree on Disordered Respiration, p. 227.



abated, but the wheezing evidently increased ; a countenance more turgid than usual, and intense headach attended. The pulse was more strong and quick for a few hours, but then sunk into great weakness.”<sup>1</sup>

2470. It is evident from this quotation, that the action of the heart was, soon after the opium was swallowed, increased considerably, continued strong and quick for a few hours, and then fell into great weakness ; and that the nausea and vomiting, increase of wheezing, turgid state of the countenance and intense headach, came on at the same time that the pulse had sunk into great weakness, it being stated of both the latter and the former, that they came on a few hours after swallowing the opium.

2471. He further states that “The paroxysm showed itself four hours earlier than usual the next day, and two grains more were taken when it was perceived to commence ; respiratory labour seemed again to abate, but the anxiety increased to an alarming degree, as the stupor became something less. The pulse was now weaker, and frequently irregular. Loose motions succeeded, and a general sweat. The energy of the paroxysm then returned with exquisite distress.”<sup>1</sup>

2472. Here the action of the heart having been reduced by the first excessive dose of opium “to great weakness,” and the accumulation of blood in the vena cava, &c. having been thereby rendered unusually great, the paroxysm came on four hours earlier than usual ; and the same medicine having been repeated in a smaller, but still large dose, similar effects were produced on the pulse, and the effects of accumulation

<sup>1</sup> Bree on Disordered Respiration, p. 224.

of blood in the interior veins showed themselves in different parts.

2473. In a third experiment with the opium, another effect of accumulation of blood in the interior veins came on, viz. painful strangury <sup>1</sup> (1853).

2474. That an accumulation of blood in the vena cava and its branches is the proximate cause of asthma, is shown also by the effect of discharges from the liver, and consequently from the vena cava, &c. (1431).

Dr. Bree states a number of cases in which it is evident that the cure was effected by such discharges.

2475. In one case the patient had "a disposition to accumulation of bile, followed by sickness or diarrhœa or both. She had a catarrhal cough in the winter, without a paroxysm. This was nearly gone, when she was seized to her surprize with an acute fit of asthma, after eating pastry, and other improper things, which from the state of her stomach, had been forbidden. She complained of a pain at the sternum, and below the ensiform cartilage. Her bowels had been very irregular; her eyes were yellow, and her urine high coloured; and at the time of my visit, she had been constive two days." <sup>2</sup>

2476. She took during the second paroxysm, three times a day, two pills containing two grains of dried squills, two of ipecacuana, and half a grain of calomel. These only produced nausea, and she took castor oil in sufficient quantity to produce free discharges, and in two days she was greatly relieved.

Some days afterwards, she had a violent paroxysm of asthma, and on inquiry it was found that her pas-

<sup>1</sup> Bree on Disordered Respiration, p. 225.

<sup>2</sup> Ibid. p. 311.

sages had become clay-coloured. She took an emetic and a saline mixture, and a pill of calomel after the operation of the emetic. "The next day she had high-coloured bilious stools, with relief." A discharge from the bowels was kept up every day, and in three days the paroxysm was at an end. She afterwards "continued free from the disease, by punctual attention to the state of her bowels."<sup>1</sup>

2477. In another case, the patient had been in a costive state for five years. At length he had a paroxysm of asthma, accompanied by a bilious complexion, tenderness at the pit of the stomach, and pains shooting from that part to his back. He had had many paroxysms: tinct. opii relieved them, but they did not go off until he had stools, and they soon returned. He was advised to drink the Cheltenham mineral water. On his journey to that place he had a severe paroxysm; but from the use of the water he obtained immediate relief from the difficulty of breathing, which remained in the remission of the disease. He continued at that place six weeks, drinking the water, and had no return of the asthma. Afterwards he took a great deal of exercise and continued well.<sup>2</sup>

The Cheltenham water is one of the stronger bitter purging waters of England.

2478. In another case, "A young lady, aged 22, had had a stomach-complaint for a considerable time. Suddenly she had a diarrhœa, in which the feces were nearly black. The first impression created a fainting

<sup>1</sup> Bree on Disordered Respiration, Appendix, case v.

<sup>2</sup> Dr. Rotheram's note to par. MCCCXCVII of Cullen's First Lines &c.

fit; but, after one copious discharge, she was greatly revived. In two hours after, she had convulsive respiration, which was relieved by more stools. Two months afterwards she had a true paroxysm of asthma, which came on after dinner."

Her bowels were then costive. She had an enema, and afterwards took opium with ether, but the symptoms continued violent. She then took a bolus of rhubarb and calomel, and a camphor mixture, with the tartrate of potash and magnesia. "The enema was repeated in two hours after the bolus. In three hours she began to have motions, highly fetid, and dark-coloured: every motion relieved her breathing, and by night the paroxysm was finished."<sup>1</sup>

2479. We have now seen that some of the remote causes of asthma produce weakened action of the heart (2441 to 2447), and consequently accumulation of blood in the vena cava and its branches (2448), while others of them produce the same effect more directly (2449); that the marks of this state of the interior veins are always present in asthma (2447); that the symptoms considered as peculiarly constituting asthma (2439) are effects of accumulation of blood in the interior veins (2451); that some other symptoms always observed in company with these, are likewise effects of this accumulation (2453 to 2460); that the asthmatic symptoms appear in cases in which the blood retires from the surface to the interior, and disappear when it returns to the superficial vessels (2461 to 2463); that they appear at periods when it is evident that there is a great accumulation of blood in the

<sup>1</sup> Bree on Disordered Respiration, Appendix, case vii.

interior veins, and disappear when that is carried off (2464. 2465); that they are carried off by such medicines as drive the blood from the internal to the external vessels (2466. 2467), and increased by such as produce weakened action of the heart and consequent accumulation in the interior (2469 to 2473); and that they are carried off by evacuations from the vena cava and its branches through the liver (2474 to 2478): wherefore it is evident that accumulation of blood in those veins is the proximate cause of asthma. .

2480. We have seen that the abundant secretion of mucus into the cells of the lungs, which is expectorated towards the close of a paroxysm of asthma, is the effect of the great accumulation of blood in the veins of the lungs, which empty into the subclavian veins. This mucous secretion Dr. Bree asserts, is the proximate cause of one species of asthma, which embraces a large majority of the cases met with in practice.<sup>1</sup>

2481. To decide the question whether it be cause or effect, let it be considered that the expectoration of mucus seldom takes place until towards the close of the paroxysm; and that when abundant it affords marked relief (2439). It does not appear until the symptoms have continued for hours, and when it appears in abundance they immediately moderate, the patient is relieved, and falls asleep.<sup>2</sup> This secretion cannot therefore be the cause of that which precedes it, and which ceases as soon as it appears.

2482. Let it be further considered that an abundant secretion of mucus cannot occur without an in-

1 Bree on Disordered Respiration, p. 56. 58. 170.

2 Cullen's First Lines &c. MCCCCLXXV. MCCCCLXXVI.



creased quantity of fluid in the vessels it proceeds from; that is, without an accumulation of blood in the vessels of the lungs; which is capable not only of producing this increased secretion, but all the other effects observed. This accumulation is therefore the proximate cause of the symptoms observed, and not the increased secretion of mucus, which is an effect of the same cause.

2483. In some instances the paroxysm gradually ceases "with little or no expectoration of mucus." This "has been commonly called the Dry Asthma."<sup>1</sup> This Dr. Bree makes another species and attributes it to "some subtle matter conveyed by the air, and attached in the act of inspiration to the sensible, membrane lining the tracheal and bronchial pipes."<sup>1</sup>

2484. It is objected to this, that there is no evidence of any such subtle irritating matter attaching itself to the surfaces mentioned; that this doctrine implies that that quality of certain states of the atmosphere which produces a paroxysm of asthma, acts directly on those surfaces; that this is not true, inasmuch as that state of the atmosphere produces the same morbid change in the patient, that arises from the operation of other remote causes, viz. weakened action of the heart, and consequent accumulation of blood in the vena cava, &c., evinced by weak pulse and pale countenance (2447), and is therefore a remote cause of the disease; that many of the effects of accumulation of blood in the interior veins are present, viz. dyspeptic symptoms,<sup>2</sup> a free discharge of urine,<sup>3</sup> and secretion of mu-

<sup>1</sup> Bree on Disordered Respiration, p. 171.

<sup>2</sup> Ibid. p. 141. 174.      <sup>3</sup> Ibid. p. 119.

cus in the bronchial tubes;<sup>1</sup> and therefore that there is no specific difference between this which is called the Dry Asthma and that in which the expectoration is more abundant: and this conclusion is confirmed by the facts, that both appear in the same person, the Dry Asthma being "sometimes seen in the progress of convalescence from the first species;"<sup>2</sup> that bleeding too freely will convert the second into the first species,<sup>3</sup> that is, that free bleeding will bring on expectoration; and that the same remedies are useful in both.<sup>4</sup>

2485. Dr Bree considers those cases of asthma in which dyspeptic symptoms are unusually prominent, as a third species, produced by irritation of the abdominal viscera and particularly the stomach.<sup>5</sup> To this he seems to have been led by the marked relief obtained by bilious evacuations (2475 to 2478). Both the symptoms and the mode of cure<sup>6</sup> show the proximate cause of this disease to be the same accumulation of blood in the interior veins (1804. 1832); and consequently that it is the same disease with the first two species of Dr. Bree.

2486. The fourth species of Dr. Bree is "dependent upon *Habit*, and caused by *Sensation*, after Irritation has been removed from the Thoracic or Abdominal viscera."<sup>7</sup> Of this operation of *Sensation* we have no evidence. As to habit; to say that certain symptoms, admitted in the beginning to have been the result of the operation of certain remote causes, have become dependent on habit, if it be thereby intended

1 Bree on Disordered Respiration, p. 172. 174. 263.

2 Ibid. p. 263. 179. 3 Ibid. p. 219. 4 Ibid. p. 216. 228.

5 Ibid. p. 196. 6 Ibid. p. 256. 7 Ibid. p. 208.

that they have become independent of the chain of causes which first produced them, is equivalent to saying that they arise without a cause: or if this be not intended, if it be admitted that they depend on a cause, as that cause must depend on another, and that on another, they depend on a chain of causes still, and the fourth species is superfluous.

2487. Dr. Bree seems to have been led to make a fourth species, to receive those cases which continue after the mucus is discharged from the lungs, or after what he considered sufficient evacuations from the bowels, had been made; because these, which he considered the proximate causes, being removed, he could no longer attribute the disease to them, and therefore supposed it to be kept up by habit, or by sensation. It is evident however that in these cases also, the remote causes, the internal state, the external symptoms indicative of it, and the effects of that internal state, being the same, the disease is the same: and because some of the effects are removed, viz. the dyspeptic symptoms, and the discharge of mucus, it does not follow that the state which produced them is entirely removed; and seeing that some effects still continue, we should conclude that some degree of the proximate cause remains, particularly as the paleness and weak pulse indicate it (1219).

### *Treatment of Asthma.*

2488. Very few in this disease, as far as my experience enables me to judge, consult physicians in the intervals between the paroxysms. In the violence of the latter they often content themselves with such aid as

they can obtain from popular remedies, and from those medical books which are intended to enable the sick to cure themselves. The decided effect produced by remedies administered in conformity with the views given above, affords reason to believe that much more may be done towards curing asthma than is commonly supposed.

2489. The treatment is to be considered with reference to the paroxysm and to the intermissions.

2490. In the approach of the paroxysm full vomiting is very beneficial, obviously by sending the load of blood in the interior veins which oppresses the patient, into circulation, as is manifest from the increased fulness of the pulse and colour of the skin. An emetic is better than any stimulant for this purpose (2014). In the paroxysm vomiting is also useful, but not so strikingly beneficial as before it is fully formed.

2491. If the pulse be sufficiently strong to bear bleeding, as it sometimes is, the loss of blood is undoubtedly proper. Sometimes the pulse in the paroxysm rises considerably, and bleeding affords very great relief.

2492. Strong and hot coffee has been found very serviceable in the paroxysm. The effect is obviously to excite the action of the heart, to carry the blood from the interior and diffuse it through the system generally. This is an excellent remedy in many of the affections dependent upon accumulation of blood in the interior veins. But its effects are temporary, and the misfortune is that the free use of it tends to produce that very state eventually, which for the moment it removes.



2493. As soon as the bleeding, if found adviseable, is performed, and the operation of the emetic is over, the patient should take such a dose of rhubarb, aloes and calomel as will operate well. Four or five pills will generally answer; but if they should not operate in three or four hours, they should be repeated. A free discharge of black or green bile affords the most marked relief, as I have frequently observed (2475 to 2478). This discharge ought to be kept up, by a repetition of the medicine from time to time, without interval throughout the day; with this restriction only, to administer the medicine in such manner as to obtain passages as consistent as can be. The same should be continued every day while the passages continue dark, until the violence of the symptoms abate, which will often be in a single day. They should afterwards be continued but more moderately, so as to obtain three or four every day, as long as they continue dark or green, or of any other than the natural colour.

2494. When the symptoms have disappeared entirely, the patient should continue to have two passages every day for a considerable time, until his health is confirmed. The symptoms are very apt to return if the discharge cease (2476). The bowels sometimes continue loose without taking medicine, for days together. If however a day should pass without two passages, one or more of the pills already mentioned should be taken at bed time: one will sometimes be found sufficient. If there should be the slightest appearance of a return of the disease, of any of the symptoms mentioned, whether they be affections of the stomach, the lungs, or of any other part, in conse-



quence of exposure to any of the remote causes, no time should be lost; the dose should be immediately increased, and the disease put down before it gains head.

2495. In a case of difficult breathing, with wheezing, accompanied by the severe pain in the sternum and arms, mentioned by Darwin by the name of *asthma dolorificum*,<sup>1</sup> the patient being also excessively pale and having a very weak pulse in the paroxysm, this plan always afforded speedy relief. A free discharge of black matter once established, moderated the symptoms surprizingly; and continued, never failed to carry them off in a few days. This patient was habitually exposed to some of the most powerful causes of weakened action of the heart and consequent accumulation of blood in the interior. She lived in a situation in which she was much exposed to miasmata, and had violent attacks in the autumnal season (2446); she was also often in want of proper food, clothing and fuel. She therefore had frequent attacks, but always applied the remedy with the utmost confidence of speedy relief, and never failed to obtain it.

<sup>1</sup> Darwin's *Zoonomia*, 3. 1. 1. 11.

*Note.* The last reference at the foot of p. 483, marked 2, is erroneous: it should stand thus,

<sup>2</sup> Bree on Disordered Respiration, Appendix, case vi.

## CHAPTER XXXVI.

### OF THE DISEASE COMMONLY CALLED DYSPEPTIC PHTHISIS.

2496. The disease commonly called dyspeptic phthisis is entirely different from that which is called phthisis pulmonalis, although it has very often been confounded with it. This arises from the two diseases in the latter stages, having very similar symptoms; so that, although in the beginning of the case doubts are entertained respecting the nature of the affliction, when free expectoration with more and more of a purulent appearance, with great emaciation and night sweats, have made their appearance, it has been concluded that the disease was in reality the true pulmonary consumption from the commencement.

2497. In this disease the patient has a cough, at first often slight, but sometimes from the beginning very violent, attacking him in paroxysms which continue without intermission for several minutes. There is at first little or no expectoration, and what is thrown up is mucus, often perfectly transparent. By degrees, in the course of some weeks, or months, the matter expectorated becomes somewhat opaque, but is still viscid, and when very thinly spread over the surface of a white bason, it is found semi-transparent. In this state it is often difficult to decide whether the

expectorated matter be mucous or purulent; and finally it assumes every appearance, as well as the smell of pus.

As the cough and expectoration progress, the patient becomes more and more emaciated, and at length has night sweats, and the skin acquires a moist, white and delicate appearance. The sweats and the expectoration becoming more and more profuse, and the emaciation greater and greater, the patient sinks into extreme debility, often becomes delirious, and expires.

2498. These are the symptoms which in general are more particularly attended to, but there are others, which distinguish the disease from the phthisis pulmonalis.

2499. In the latter the appetite is often good, the stomach free from every appearance of dyspepsia, and the liver perfectly sound; there is pain in the side or breast for the most part, and a difficulty of lying on the side in which the pain is felt, the cough being thereby considerably increased.

2500. In the other affection, there is sometimes pain in the right side near the edge of the rib, with a difficulty of lying on the left; sometimes there is a manifest enlargement of the liver, or fulness of the hypochondrium, with soreness of the epigastrium on pressure; the stomach is disordered, the appetite being indifferent, and the digestion more or less imperfect; the secretion of bile is irregular, the discharges are often green, dark, or even black, particularly after a dose of calomel, the tongue is furred, and the skin is sometimes of a yellow cast.

2501. On comparing the early symptoms of hydro-

thorax, of asthma, and of the disease now under consideration, we shall find a striking resemblance in all of them.

2502. There is in all of them more or less difficulty, or sense of straitness in breathing, with cough, in the beginning dry, and afterwards accompanied by mucous expectoration. In the disease especially under consideration, the patient is sometimes compelled to lie with the head very high from a difficulty of breathing in the night, as in asthma and hydrothorax. When the expectoration becomes very free, this symptom is so much relieved that he lies with the head low. The other symptoms, affections of the stomach, liver, &c. (2500) are common to all three.

2503. The near relation existing between asthma and hydrothorax is apparent from what has been already stated (2331 to 2334. 2354. 2439. 2457).

2504. The existence of the same between the disease under consideration and asthma, appears from statements made by Dr. Bree. He says, "The catarrhal disposition is very frequently followed by asthma" &c.<sup>1</sup> He speaks also of "an asthmatic consumption."<sup>2</sup> He says, "In the species of consumption called *pituitous*, there are contra-indications, which, in its commencement, will not allow a certain prognostic of which disease it may finally bear the character—of asthma or of phthisis."<sup>3</sup> He speaks likewise of phthisis supervening upon asthma.<sup>4</sup>

2505. These quotations show that he had observed the affinity between these two diseases; and also

1 Bree on Disordered Respiration, p. 104. 105.

2 Ibid. p. 124. 3 Ibid. p. 127. 4 Ibid. p. 199.

that the state in both is so much the same, that in the commencement it cannot always be positively determined with which the patient will be affected, and that whichever he may experience, he may readily exchange for the other. The difference observed arises out of the operation of the same cause, accumulation of blood in the vena cava and its branches, on different states of the system. In asthma there is less expectoration and greater difficulty of breathing; in dyspeptic phthisis freer expectoration and less difficulty of breathing. In the former, when the expectoration becomes free, the difficulty of breathing is relieved; in the latter if expectoration be checked or cease, difficulty of breathing is experienced. It is evident therefore, that in a case of asthma in which the difficulty of breathing is carried off by free expectoration, the continuance of this discharge with continued relief from the dyspnœa, would afford an instance of the change from asthma to dyspeptic phthisis.

### *Treatment.*

2506. It is evident from the preceding observations, that the same state which exists in asthma, exists also in dyspeptic phthisis; and consequently that the same object should be kept in view, viz. obtaining two or three daily evacuations from the liver.

2507. In addition to this, the patient should be blistered very frequently; there should be a constant drain kept up from some part of the surface of the chest. I am persuaded from experience that this is more effectually done by blistering twice a week, than by the use of the ointment with tartarized antimony.



2508. On these two remedies the main dependance should be placed for relief; but there are others which are occasionally necessary.

The patient should be bled whenever the pulse is strong, perhaps whenever it will bear it.

Great benefit is also sometimes derived from an emetic, particularly in the very commencement of the disease.

2509. The diet should be light, if not low. The patient should use milk, butter-milk, bread, butter, stewed fruit, &c.

2510. In this disease the patient is seldom disposed to submit to the use of medicine and low diet long enough to recover his health entirely. He often rapidly improves at the commencement, insomuch as to believe or to hope that he is cured, and to refuse to continue the directions given him. In consequence of this he relapses into his former state, and it is seldom that as much benefit is derived from a second attempt to relieve him. In other cases the amendment of the patient is slow from the beginning; he is unable to perceive it, or unwilling to acknowledge it, and is prone to fly for more speedy relief to any thing that is confidently mentioned to him as a cure for his disease.

2511. In consequence of this it has seldom been my lot to cure this complaint, or to see it cured. A few cases which follow, will convey an idea of the effect of the mode of treatment proposed, and of the success which occasionally attends it.

2512. In the autumnal season of 1821, I was much exposed to the operation of miasmata in attending the

sick along the sides of a large stream of water. In consequence of this, considerable disorder appeared in different parts of the system, with very bilious discharges. Constant occupation prevented proper attention to this state of things, and the symptoms were merely kept down by occasional cathartics. The season passed off in this way, and the system continued in what is called a bilious state, with occasional pain in the shoulder, on the approach of cold weather. About this time a cough appeared, and gradually increased until it became excessively violent, sometimes continuing without interval until perfect exhaustion took place. There was no expectoration except a little transparent mucus occasionally after the most violent coughing; but it was generally thought that the disease was consumption, or verging fast towards it, and death was by many considered pretty certain.

Bleeding a few times, however, together with active purging with mercurial cathartics, which brought away black or dark green matter, and were continued until the discharges became natural in colour and appearance, in the course of a month or two carried off every dangerous symptom, and the cough was perfectly cured, and has not returned.

2513. A youth of seventeen years of age, of slender form, was affected much in the same way. His cough was however not merely exhausting, but almost incessant, day and night. There was no expectoration. In hopes of removing this troublesome symptom, he was directed to take twenty grains of ipecacuanha. This vomited him freely, and relieved him almost entirely. He immediately after the operation commen-

ced taking pills of squill; one, containing two grains, every two hours. He speedily recovered and has had no return of the cough: eleven years have elapsed since that time.

In these two cases blistering plasters were not used. The squill given in the way mentioned, perhaps never fails to purge. As however it was, at the time, given with the idea of promoting expectoration, no attention was paid to the effect on the bowels, and it is not recollected whether it operated on them or not.

These were cases in which the disease was taken early and treated actively.

2514. In 1825 a lady of dark complexion and bilious aspect, complaining of a number of symptoms usual with people of that appearance when in bad health, was at length affected with a dry cough, which gradually became very severe, and was accompanied by expectoration.

She was advised to take the mercurial cathartic pills in sufficient quantity to operate three times a day, and to blister twice a week. She was willing to take the pills, but not to apply the blistering plaster. She took the medicine regularly, and rapidly recovered her health, until she had so little cough that she considered herself well, and would not be persuaded that there was danger of a relapse if she ceased taking the pills. Every argument was used in vain. In a few months however, the cough returned, and she was carried off by it in despite of blistering, and the continued use of the medicine.

2515. This has occurred in so many instances that it seems almost a hopeless task to undertake the cure

of these patients. They almost invariably become weary too soon, and either cease under the idea of their having recovered, or have recourse to some of the thousand remedies that abound in every neighbourhood for this fatal disease.

There are however a few instances which show what may be done by perseverance.

2516. In one instance a friend having desired my assistance, it was refused unless he would promise positively to follow the directions given him, as long as he should be desired to do so, without regard to any representations that might be made from any quarter.

With some difficulty he assented. He was at that time quite reduced, confined mostly to bed, and expectorating considerably: in the course of the attendance he had an attack of nephritis. He was bled repeatedly, blistered twice a week, and purged with aloes and ipecacuana, sometimes with a little calomel, in such manner as to produce two or three loose passages every day, for two or three months. He continued the medicine for about four months, for some time after he was riding about with every appearance of health. His diet was milk, bread, &c. He recovered gradually, and is now perfectly well, and has been for some years in the habit of preaching frequently and regularly.<sup>1</sup>

<sup>1</sup> This case is stated in full in the twenty-eighth number of the Medical Recorder, and is the fourth case there stated. This, and the second and the fifth, I am persuaded from a full recollection of them, were, as Dr. Lucas afterwards suggested in the thirty-sixth number of the same journal, cases of dyspeptic phthisis. The first, third, and sixth were cases of phthisis pulmonalis, and occurred in persons whose families are subject to this disease. The subject of the last mentioned, and one sister were all that escaped of twelve persons, sons and daughters of two brothers.

2517. A lady between twenty and thirty years of age, of a pale and somewhat sallow complexion, and much reduced in flesh, had a cough which was generally considered consumptive. Her physician it was believed was of that opinion. She had had several children, and it was expected after every confinement that she would sink. Being requested to attend her on one of these occasions, I was led by the occurrence of considerable pain in the bowels to give her a mercurial cathartic. The discharges were quite black. She continued to take active mercurial cathartics for a week, when the passages became natural. She recovered rapidly, lost her cough, acquired flesh and colour, and was for some years afterwards quite healthy. At length she fell into a state similar to that in which she formerly was. Her physician was prescribing for her for a long time and she was continually getting worse, when (by good luck, as a lady expressed it, who had observed her for several years, and took notice of the effect of the mercurial cathartics, abovementioned) she had a violent colic. For this she was treated with mercurial cathartics and quickly recovered.

2518. One case more is mentioned to show what may be done by this treatment in the most unpromising situation. A young woman of twenty, living on a considerable stream, in a sickly neighbourhood, in an autumnal season when multitudes were sick all around, had all the symptoms above mentioned. Her liver was more enlarged than in any case of the kind now recollected. The cough, &c. were so severe, and she had been so long ill when I was desired to visit her,



that the opinion was given that she could not live. She was nevertheless able to bear bleeding repeatedly; she was directed to be blistered twice a week, and to take the pills of jalap, aloes and calomel in sufficient number to operate on the bowels at least twice every day. After repeated visits, her friends were advised to continue the course, as she seemed uncommonly determined to make every effort to recover, but they were told that there was scarcely a possibility of her living. She nevertheless persisted, took the pills abovementioned very constantly for two or three months, and after ceasing for near two months, returned to the use of them for four months, and recovered. Early in the following August some appearance of the symptoms induced her to take the same medicine, and she continued it during the whole month. In the last of November she was able to undertake a journey of some hundred miles.

## CHAPTER XXXVII.

### OF SEVERAL AFFECTIONS OF DIFFERENT PARTS.

2519. In the diseases hitherto under consideration, although several parts of the body are affected at the same time, some one is so much more so than the rest, that the disease is generally considered as an affection peculiarly of that part, and in the nosological definitions the affections of the other parts are often overlooked.

2520. In some cases however, the affection of one part is so much more considerable than that of others, that the former engrosses the whole attention of the patient, and very often the latter pass unnoticed unless particular inquiry be made by the physician respecting them.

2521. In others, although several parts are affected, no one is so strikingly disordered as to give name to the disease, and sometimes the affection of one part and sometimes that of another predominating, different views are at different times entertained of the nature of the disorder, and the patient is said to have a complication of diseases.

2522. It is proposed to give in this chapter a few cases intended to elucidate this subject, with the treatment which has been found successful.

*Of Headach.*

2523. We frequently meet with cases in which the patient complains of intense pain in the head, accompanied by very weak pulse: sometimes the patient's face is flushed, but generally it is very pale. Frequently this is the sole symptom complained of.

2524. A lady near fifty years of age, had excessive pain in the head, weak pulse, and exceedingly pale, and moderately cool surface. She took several pills of jalap, aloes and calomel: they operated well, discharging dark-coloured bilious matter. The pain however although moderated was still severe. She prevailed on me to bleed her, although it was doubtful if her pulse would bear it. It did not however become weaker, and soon after a purging came on (the medicine having ceased operating for some hours), and continued very free all night. She discharged a great quantity of dark coloured matter, and was by this abundant evacuation greatly benefitted, and rapidly recovered under a continuation of the discharges, kept up by the same medicines.

2525. A lady above thirty years of age, complained of excessive pain in the head; the pulse was quite weak, the face flushed.

She took an emetic which produced a free circulation of blood, and stronger pulse, and she was bled. She then took a mercurial cathartic, the pulse increased, and she was bled twice more in the course of the afternoon and evening. The blood flowed freely after the ligature was taken from the arm, and in the night she lost blood from the orifice. She was greatly relieved by the bleedings and the discharges from

the bowels, and the next morning was entirely free from pain.

2526. In one instance a man called and complained of intolerable pain in the head, but as his pulse was exceedingly weak and his countenance pale, a medical gentleman present doubted the reality of his pain; but while he was in conversation respecting it, the man fell over. He was relieved by mercurial cathartics.

2527. In these cases, as in all others, to relieve the patient it is necessary to change the state or condition of the system on which the distressing symptoms depend: that is, in the case under consideration to remove the accumulation of blood in the vena cava and its branches, of the existence of which there can be no doubt (1219).

1528. This is to be done by driving the blood into circulation by an emetic, and taking it off if it can be safely done, by the use of the lancet: or, whether this be thought adviseable or not, by continued discharges from the liver.

2529. In those cases in which excessive sickness of the stomach accompanies the headach, commonly called the sick headach, the same treatment is proper.

### *Of Dimness of Vision.*

2530. Dimness of vision is another affection frequently occurring in connexion with disorders of the head, &c.

2531. A lady who for several affections of the head, stomach, liver, &c. had taken for some time, pills of jalap, aloes and calomel, and of jalap and aloes, and whose general health was materially improved, inform-

ed me with surprize that her sight had so improved that she could thread a cambric needle, which she had not been able to do for many years.

*Of Distorted Vision, Double Vision, and Distortion of the Eyes.*

2532. An elderly man complained of great dimness of sight, and extreme distortion of his eyes. His left eye was turned so completely towards the nose, that he could not see any thing before him with that eye, and his nose which was very prominent, obstructing his vision sideways he could not see with that eye at all. The other eye was distorted but not so much so. They both turned towards the right, so that by turning the side of his head towards an object he could see it. It was however with extreme difficulty that he walked the streets.

He took pills of jalap, aloes and calomel, and of jalap and aloes, a long time with a gradual but manifest amendment. When he ceased, he looked with his right eye directly forward at an object; the left was still a little oblique. The discharges were black, dark, green, &c.

*Of Confusion of Intellect.*

2533. Confusion of intellect is another affection of the head of so great importance to those who are in the habitual exercise of the mind, that it deserves very particular consideration. It has been shown to be an effect of accumulation of blood in the vena cava and its branches (1320). A person who has for a considerable time been in the habit of studying closely, after sitting up late for several nights, or making a con-



tinued effort of the mind for days together, may sit down to write and without being sensible of any kind of indisposition, find every effort vain: after a short time a fulness may be felt in the forehead, and a sensation of heaviness over the eyes: this is frequently followed by an uneasy sensation approaching to pain, sometimes felt and sometimes not felt, until at length it becomes fixed in the forehead or the temples, or in both.

2534. A person who has brought himself into this state, may have his mind, at particular times, so inefficient, so disposed to wander, that, although there may be the greatest necessity for close application, this is impossible.

2535. The writer had by excessive application through four years, become entirely unable to do any thing for a month. With the head confused, slight and sometimes considerable pain, redness of the eyes, double vision, every object appearing as two, uneasiness in the right side, and sometimes in the kidneys, poor appetite, reduced flesh and sallow complexion, he determined to make an effort to obtain relief.

He took from two to four pills of rhubarb, aloes and calomel every night for twenty-seven nights. They operated moderately every day two or three times, producing passages of a bilious appearance, and at length they were very acrid.

By the end of the first week, from being unable to read or to write at all, he was enabled to spend all his spare time in that way, and in a short time afterwards he could do as much ever. At the same time the flying pains about the bowels, sides, and back, had dis-

appeared, and the appetite, colour and complexion greatly improved. The discharges were black, dark, green and finally yellow.

So marked was the benefit, so much more efficient the intellect, that his purpose was fixed to take them habitually. The result of the continued use is, that with three consistent discharges in the twenty-four hours, the confusion of the intellect is prevented, or if it have come on, it is carried off, and the appetite, the complexion and the strength sustained. In short, such is the confidence in the benefit of this plan to men of great application, that the writer is persuaded that no one who values a clear head, will, after a fair trial, ever give up at least the occasional use of this remedy.

2536. A gentleman in the habit of constant studying, sometimes intensely, and sitting long and late had been subject for many years to a violent pain in the head over the eyes, particularly the right. It was often preceded by the confusion of intellect already mentioned; which evidently is the effect of the same cause, inasmuch as the latter is followed by the pain in a short time, and they are so connected as to render it obvious that the latter is a different grade of the same affliction (1319. 1320).

When this person first had this affection, he was for six weeks unable to attend to business. On application to me he was advised to take the cathartic pills as heretofore stated, and with the same attention to kind and number of passages. He did so and found effectual relief, and although the affliction returned over and over again, this was the effect of the repeated operation of the cause, hard close study late

at night. As it is, so effectual and so certain is the relief, that he abuses the benefit, making the remedy a means of enabling him to go greater lengths than ever, through a feeling of indifference concerning an evil so readily removed. When, as is often the case, he is called on to make a long-continued exertion of mind, and particularly when some great effort is to be made, he is literally kept up by the daily use of the pills of rhubarb, aloes and calomel, sometimes with the addition of a small quantity of scammony: and he has repeatedly declared that he could not have continued the effort, could not have kept up without them.

### *Of Palpitation.*

2537. In some cases this symptom is so violent as to alarm the patient excessively, and to engross his whole attention, to the exclusion of affections of other parts also present. In the paroxysms, so to call them, the patient sometimes lies with a pulse scarcely perceptible, and apparently scarcely alive.

2538. Purging with such medicines as produce a free discharge from the liver, affords marked relief as soon as they operate freely. The discharges should be kept up for some time until they become entirely natural: afterwards two passages a day should be procured for a considerable time. In this way, without tonics or stimulants I have seen patients greatly benefitted in this affection.

It is not improbable that an emetic might in these circumstances afford more speedy relief than cathartic medicines: these are however the dependance for lasting benefit.

*Of Hemorrhoidal Tumours.*

2539. When hemorrhoidal tumours first appear, they may often be immediately carried off by a free discharge from the liver, produced by an active mercurial cathartic. Objections are made by many to the use of aloes in any shape in this disease. I have known pills of rhubarb, aloes and calomel, given on the day on which hemorrhoidal tumours appeared, although they were very large and painful, by a free operation immediately relieve the patient, and carry off the disease in a day or two: after the tumours have continued a few days, they are not so easily removed.

*Of Emaciation.*

2540. Persons are sometimes met with, who without any remarkable complaint of the head, stomach, &c. lose their flesh and become weak. This is occasionally observed in children and in adults.

Two consistent discharges a day from the bowels continued for a short time, produce in these cases marked benefit. In children five grains of calomel every night, and if it does not operate, the addition of as much rhubarb, will be found very serviceable. It is sometimes difficult to convince such people that you seriously propose purging them; they think they are too weak already, and that this course will increase the evil: they are however soon satisfied when they observe the effects of the medicine.

*Of Jaundice.*

2541. The emaciation abovementioned is frequently accompanied by yellowness of the skin. This

symptom is sometimes connected with a costive state of the bowels, and sometimes with a free discharge of bilious matter from them. The yellowness of the skin produced by the obstruction of the biliary ducts by a gall-stone, is not to be considered here; but only those cases which result from the operation of the remote causes on the system.

2542. The yellowness of the skin connected with a costive state of the bowels, is soon carried off by the mercurial cathartic medicines which produce consistent passages. Very large doses are sometimes necessary to effect the purpose; the patient being in some instances engaged in taking medicine the whole day in order to produce the desired effect. Perseverance however ensures the attainment of the object and the continued use of the medicine carries off the disease.

2543. In those cases in which there is a free discharge of dark bilious matter, a more free discharge of the bile is necessary to remove the disease.

### *Of Pains in the Abdomen.*

2544. Pains in the abdomen often occur in those persons who are disordered by the operation of miasmata and other remote causes which produce weakened action of the heart, and consequent accumulation of blood in the interior veins. These pains are accompanied by marks of such accumulation, and they are often violent in proportion to the paleness of the surface and the weakness of the pulse.

2545. I have no recollection of any case of this kind that was not relieved entirely by a free discharge of bilious matter from the bowels; nor of any in which



such discharge was not obtained by persevering in the administration of mercurial cathartics.

2546. For many years, the prescription found to be constantly successful was jalap and calomel, in equal quantities, made into pills with syrup, and two, containing five grains each, given every hour until a free operation was effected, when the patient was relieved. The pill of jalap, aloes and calomel is as effectual and less nauseating, and is therefore preferred.

2547. It was very often observed that in these cases the medicine vomited the patient, and he was thereby much relieved. From this it was concluded that vomiting would be useful in these painful affections, particularly when the pulse is weak; and on trial this was found to be the case, instant relief following vomiting produced by a dose of ipecacuana and calomel.

2548. These pains are often chronic, and in order to remove them entirely, the patient should use the cathartic medicines, as in other cases of chronic disease, for some time until the discharges become natural, and should afterwards take a dose at bedtime whenever a day passes without his having a free passage.

### *Of Pain in the region of the Liver.*

2549. Severe pain in the region of the liver sometimes occurs in autumnal seasons, connected with fever; but much more frequently we meet with cases in which the patient, with pain in this part and sometimes in the shoulder also, is very pale, has a weak pulse, and a cold hand. The epigastrium is often very tender and in old affections of this kind, the patient complains of a burning sensation between the umbilicus

and the great curve of the ribs, nearest to the latter, and confined to a very small spot.

2550. This disease is speedily relieved by such medicines as produce consistent discharges from the bowels; and by a continuance of them it is cured, if it be not of so long standing that the vessels of the part have lost, in a great measure, their power of contracting to their original size when the distending force is taken off from them by evacuations.

2551. A few years ago a lady desired my assistance who had been for five or six years complaining of such a pain. She had consulted several physicians; her disease had been called by them a liver-complaint; she had been salivated by them several times, and was at the time of her application to me, in a salivation.

In addition to the pain near the edge of the ribs, which was generally in the right side, but sometimes in the left, she was found on inquiry to have uneasiness on pressing the epigastrium, to have had very little appetite until lately, and sometimes to have thrown up her victuals: she had also been costive, had frequently had a pain in the head and back, palpitation, and cramp in the arms and legs: the menstrual discharge was regular; "but the last was as black as gunpowder;" the urine was very high coloured; her complexion was very dark, and she was reduced in flesh.

As she was in a state of salivation, she was advised to take pills of rhubarb and aloes with some scammony. She took them regularly every night, and in three weeks she was relieved almost entirely. She continued afterwards occasionally to take the medicine, and soon became fleshy, with a good colour, and able to do

every thing about her house: she continued in good health as long as she remained in the neighbourhood.

2552. The most obstinate symptom in such cases is "a burning," the word which the patients uniformly choose to express the sensation, at a little distance below the edge of the ribs, and about three inches from the middle of the scrobiculus. It only occurs in very old cases; it is removed by the same means, but with much more difficulty than the rest of the symptoms, and is always the first to appear on exposure to any of the remote causes. It is to be kept down in these old cases only by the occasional use of the medicine, the vessels of the part being so overstrained that they cannot recover, unless they are kept entirely free from distension by occasional evacuations.

### *Of Pain in the Back.*

2553. We sometimes meet with cases in which the patient complains of severe pain in the lower part of the back without any other symptom considerable enough to attract his attention. These cases are commonly considered as rheumatic affections. Rheumatism undoubtedly sometimes affects the back, but the cases at present alluded to, are to be distinguished from such affections by the patient being entirely free from increased temperature, by weakness of the pulse, by the tenderness of the epigastrium on pressure, by some disorder of the stomach, and by the dark colour of the discharges from the bowels.

2554. A black man applied for relief from rheumatism in the back, as he called it. He had a very severe pain across the sacrum; he could not without

great difficulty and pain, rise out of a chair, and was careful all the time of rising to preserve himself very erect, resting on his hands and on a cane, and moving his legs alone. He had no fever throughout, though he was carefully examined at all hours, his pulse being throughout weak and small, and his skin perfectly free from febrile heat. He had some tenderness of the epigastrium, though so slight that he did not mention it or perhaps attend to it; he had occasional eructations and habitual acidity of the contents of the stomach. He took twenty grains of jalap and ten of calomel. The discharges were like tar. The same medicine was continued daily with like effect, and in eight days he was entirely relieved, the discharges having become natural.

2555. As in some cases one part is affected almost exclusively, in others several parts are disordered, but no one so much more than the others as to give name to the disease, and in a third set, though one part may be more severely affected to day, another perhaps will be so tomorrow, and a third on the day after; and the affections of the different parts alternate so continually that the patient is said to have a complication of disorders.

2556. A lady thirty years of age, of small size, reduced to a state of great debility, of pale complexion, with œdematous swellings of the feet and evident tendency to general anasarca, with frequent palpitations, disordered stomach, and leucorrhœa, applied for assistance.

By the regular use of the pills of rhubarb, aloes and calomel, two every night, which operated two or three

times the next day, she steadily improved; and in a short time became perfectly hearty in every respect, having acquired a fine complexion, and become quite fleshy.

2557. In another case, the patient had been for a year or two gradually declining in health. She was very much emaciated, of a sallow complexion, with headach, vertigo, disordered stomach and liver, and was excessively low-spirited. She had been for a year or more taking various medicines, given with a view to support her strength, and these having failed, she had been salivated with no better effect.

In this situation having desired my assistance, she was furnished with a parcel of pills, with the usual directions. It was found necessary to use the jalap instead of the rhubarb, and to take six pills every night. Every dose vomited her severely, for a week or two. She nevertheless persevered and steadily improved. She was in the fifth month of pregnancy when she commenced taking the medicine, and long before she was confined she had acquired a good complexion, a great increase of flesh and strength, and moved about the house with life and spirit.

END OF THE SECOND VOLUME,





